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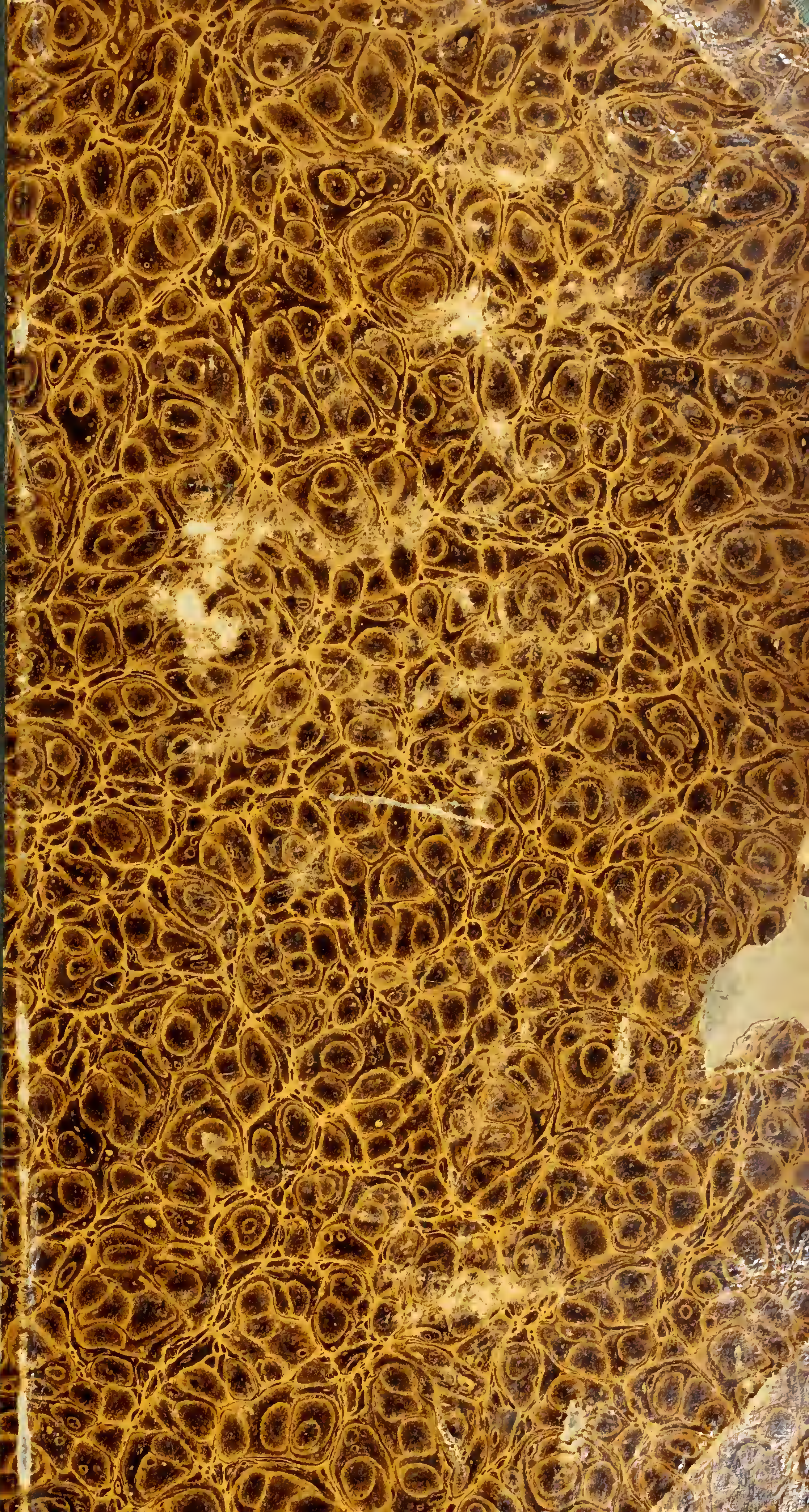

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THE
PENNSYLVANIA MEDICAL JOURNAL

REPRESENTING

THE TRANSACTIONS OF THE MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA

AT ITS ANNUAL SESSION HELD AT

SCRANTON, SEPTEMBER, 1916

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REPORT OF CONFERENCE OF PHYSICIANS, PENNSYLVANIA DEPARTMENT OF LABOR AND INDUSTRY, FEBRUARY 17, 1916

HOUSE CAUCUS ROOM—STATE CAPITOL, HARRISBURG

MORNING SESSION

Conference opened at 10 a. m. with Dr. Francis D. Patterson, Chief of the Division of Hygiene and Engineering, in the chair.

The following persons were in attendance:

Dr. C. S. Apgar, Pittsburgh, Armstrong Cork Co.
Dr. F. F. Arndt, Scranton, Pennsylvania Coal Co. and Temple Coal Co.
Dr. Mitchell Bernstein, Philadelphia.
Dr. T. J. Bowes, Philadelphia, Philadelphia Electric Co.
Dr. Stillwell C. Burns, Philadelphia, Baldwin Locomotive Works.
Dr. J. L. Christian, Lopez, Connell Anthracite Mining Co.
Dr. George M. Coates, Philadelphia, Wetherill and Brother.
Dr. E. W. Cross, Curtisville, Ford Colleries Co.
Dr. G. M. Dickson, Pittsburgh, Pittsburgh and Baltimore Coal Co.
Dr. G. E. Dietrich, Coatesville, Worth Brothers Co.
Dr. George O. Evans, Pittsburgh, Oliver Iron and Steel Co.
Dr. J. K. Farrar, Audenried, Charles M. Dodson Co.
Dr. F. U. Ferguson, Gallitzin, Tunnel Coaling Co.
Dr. H. T. Fogg, New York City, National Biscuit Co.
Dr. J. Clinton Foltz, Philadelphia, American Pulley Co., Rowland Spring Co. and Pennsylvania Forge Co.
Dr. C. P. Henry, Reading, The Carpenter Steel Co.
Dr. J. B. Hileman, Harrisburg, Pennsylvania Railroad Co.
Dr. H. Y. Horn, Coplay, Atlas Cement Co.
Dr. E. H. Ingram, Philadelphia, William Cramp and Sons Ship and Engine Building Co.
Dr. Thomas W. Jackson, Philadelphia, H. K. Mulford Co.
Dr. H. E. Klase, Harrisburg, Philadelphia and Reading Railroad Co.
Dr. D. H. Lake, Kingston, Kingston Coal Co. and Stevenson Coal Co.
Dr. C. A. Lauffer, East Pittsburgh, Westinghouse Electric and Mfg. Co.
Dr. John B. Lowman, Johnstown, Cambria Steel Co.
Dr. J. W. Luther, Palmerton, New Jersey Zinc Co.
Dr. Alfred C. Marshall, Philadelphia, Powers-Weightman-Rosengarten Co.
Dr. C. H. Pike, Philadelphia, Harrison Brothers and Co.
Dr. E. N. Piper, New Kensington, National Lead and Oil Co.
Dr. W. A. Prideaux, Expedit, Commercial Coal Mining Co.
Dr. H. T. Prideaux, Cresson, Pennsylvania Coal and Coke Co.
Dr. George Robinson, Ambler, Keasby and Mattison Co.
Dr. J. B. Rogers, Pottsville, Philadelphia and Reading Coal and Iron Co.
Dr. R. W. Rubin, Irwin, Westmoreland Coal Co.
Dr. William B. Scull, Philadelphia, John T. Lewis and Bros. Co.
Dr. L. H. Seaton, Pittsburgh, Consolidated Coke Co.
Dr. L. A. Shoudy, South Bethlehem, Bethlehem Steel Co.
Dr. D. E. Sloan, Monessen, Pittsburgh Steel Products Co.
Dr. Henry F. Smyth, Philadelphia, University of Pennsylvania.
Dr. A. W. Urmson, New Castle, Carnegie Steel Co.
Mr. A. P. Wetherill, Philadelphia, Wetherill and Brother.
Dr. J. L. Zimmerman, Hershey, Hershey Chocolate Co.
Dr. Randall Zimmerman, Wilmerding, Westinghouse Air Brake Co.
Dr. John B. McAlister, Harrisburg, President, Medical Society of the State of Pennsylvania.
Mr. Paul N. Furman, Harrisburg, Chief, Bureau of Statistics, Department of Labor and Industry.
Mr. John S. Spicer, Harrisburg, Department of Labor and Industry.
Dr. Walter H. Blakeslee, Harrisburg, Department of Labor and Industry.
Dr. Elizabeth B. Bricker, Harrisburg, Department of Labor and Industry.
Dr. Francis D. Patterson, Harrisburg, Department of Labor and Industry.

ADDRESS OF WELCOME

JOHN B. McALISTER, M.D.
President, Medical Society of the State of Pennsylvania
HARRISBURG

Mr. Chairman and Gentlemen: When I received the request from Commissioner Jackson and Dr. Patterson to appear before this body I was duly flattered but thoroughly lost to know what to talk about. I felt I was not competent to instruct you gentlemen on any subject relating to industrial disease, or the hygiene and sanitation of occupation; or even talk intelligently regading the labor laws of the state. Then realizing that I was invited because of my official position as president of the state medical society to talk to men, some of whom are and all of whom should be, members of the great Medical Society of the State of Pennsylvania, I thought I might with propriety occupy a few minutes of your time in speaking on a phase of the Workmen's Compensation Law which is very much on my mind at this time, namely, the attitude of the medical profession toward the Compensation Act. I am pleased to have this opportunity to say before you men what I believe should be the attitude of the physicians and organized medicine toward the Compensation Board, because you represent various communities, and if you are in accord with my views, you can greatly help to spread throughout the profession an attitude of friendliness and cooperation of the profession.

I shall not discuss the principles of compensation except to remind you that the basis of all Workmen's Compensation Laws is the principle that the economic cost of the industrial accidents should not be met by the employer or by the workmen alone, but should be assumed by each in fair proportion. This loss should be distributed over the entire cost of the industry, and ultimately be paid in a manner as to cause the least possible disturbance to the trade or business concerned. The mistaken attitude assumed by many toward the Workmen's Compensation in the early days of its discussion has been modified in the light of its successful working wherever it has been tried. Today many former opponents stand ready to lend their help in the accomplishment and enforcement of the provisions of such a law. It is not too much to hope, I trust, that the physicians, although they do not hail this law with unspeakable joy, will cooperate with the Compensation Board in every possible way.

The Workmen's Compensation Act is now a law of this state. We are living and working under this law and must abide by it. This revolutionary enactment is regarded by some economists as the most important one since the emancipation of the negro through the Civil War. Such a revolutionary movement will not be innovated nor administered without innumerable mistakes and misapplications. These will be greatly minimized if the members of the medical profession exercise careful judgment and unflinching loyalty to each other. It is not a law requested by the medical profession, nor is it a law opposed by it. Nevertheless, it is a statute which, in the opinion of our legislators will yield the greatest amount of good to the greatest number of our citizens. That should be enough for the physicians of the state of Pennsylvania. If it is to the benefit of our patients, certainly it should be to our interests. It is not intended to injure us and we should endeavor to have the law administered in harmony with the interests of our profession. The Workmen's Compensation Board has passed a resolution as follows:

> *Resolved,* That the Compensation Board will welcome any friendly cooperative advice and aid from the State Medical Society in aiding to develop and carry out the work under its direction.

This shows a decided disposition to administer the law fairly to us, and the Board fully appreciates the necessity of the support of the medical profession if their work is to be a success. Mistakes will be made and the Compensation Board realizes that they will make mistakes. But I believe they will be corrected as they develop. We are concerned not only with the law but also with the administration of the law.

In self-defense we must, of course, have due regard for the financial side of the law, and of which I believe we are agreed that the returns are too meager. But we must remember that this law was passed in a period of financial depression when the future looked gloomy and discouraging to the employers of labor. The law drafted at that time endeavored to keep down the compensation and all the compensation features were made correspondingly low. Our profession has always made much of its altruistic motives and rightly so and we must not now make too prominent our objections to the law because of the financial returns. I believe if we accept it as gracefully as possible for a time, and if the compensation to the hospitals and physicians is not sufficient that, at the next session of the legislature, there will be a united request by the Workmen's Compensation Board, hospital management, and the medical profession for proper recognition that cannot and will not be ignored. Then, too, we must remember that now there will be sure compensation for much work that heretofore has been done by the hospitals and physicians as pure charity. A large majority of these accident cases were treated at hospitals free of charge. Now the industry pays these charges. Many who went to physicians' offices were able to pay little, if anything; now the law requires the employer to pay a reasonable sum for the physician's services.

Some European countries having longer experience have generously enlarged their medical funds, realizing that the best of medical aid and medical attention bring a tremendously increased return in rapidity of recovery, and economy in compensation and further medical aid.

Let us pledge ourselves to meet the many problems and complications which will surely arise in the administration of the law with a spirit of fairness and desire to cooperate. Let us too at the same time, regard these problems as a business proposition in which we must be fairly and justly treated as individuals and as members of a profession. The profession and the commission must work close together and only through our strength and loyalty to each other can our individual interests be properly protected. We should keep ourselves informed of any acts of unfairness or injustice that may develop so that we may collect this data to act in the interests, of the profession. When so many of the states have such an act and its provisions are working successfully for all concerned, why should we be looking for trouble before any exists? Let us apply our brains to the smoothing out of whatever wrinkles the act may create and thus make it a better instrument for our profession and the people depending on it.

We want to take our part in keeping Pennsylvania high among the states which have advanced in hygienic conditions and keep efficient our population so largely engaged in dangerous or extra hazardous pursuits, and especially the lives of vast bodies of men who work in coal mines, steel mills, railroads and other pursuits in which there is more than an ordinary amount of risk and hardship.

The Chairman: I am sure we have all listened with a great deal of interest to this most eloquent address by Dr. McAlister. We will now listen to Dr. Bricker.

ASPHYXIATION AND SUFFOCATION

ELIZABETH B. BRICKER, M.D.
Of the Department of Labor and Industry
HARRISBURG

There is in actual practice such a slight shade of meaning between the two words asphyxiation and suffocation that they may well, in this present discussion, be considered as one and the same thing.

The three main conditions in which these accidents may occur are in drowning, in electric or traumatic shock, and in gassing; by this latter term is meant the inhalation of a gas, which cuts off entirely or which diminishes to so great an extent the amount of oxygen taken into the lungs that the act of respiration is inhibited.

While drowning is responsible for almost twice as many deaths as are the other two conditions combined, it is nevertheless to them that our attention at this meeting must be especially directed; for it is these causes that play such a serious part in the industrial accidents, not only in Pennsylvania but also throughout the entire country. It is true that drowning does occur under some circumstances in connection with the industries. The number of deaths, however, reported from this cause is very largely overshadowed by the number of deaths from drowning occurring under other circumstances.

Although we are, to a certain extent, concerned with the cause and the prevention of all these accidents, such considerations are really more within the province of the safety engineer than they are the business of the plant physician. The treatment is, however, something which is up to the doctor and for which he alone is responsible, whether it is the treatment administered by him individually or by the first-aid men whom he has instructed.

Much has been written on the subject of resuscitation from asphyxiation and suffocation and the purpose of this paper is not to offer anything new on the subject. A résumé of several of the methods which are, at the present time, being so strongly advocated by some and just as strongly opposed by others, is here presented in order merely to open a discussion on this subject.

So many of these accidents have occurred in the past, and will continue to occur in the future, so far removed from ready access to mechanical devices for resuscitation that, for this reason alone, adequate instruction in the manual methods of producing artificial respiration can never be abandoned.

While the Silvester, the Marshall Hall and the various other manual methods have each in turn served their days as the best methods, they have all been supplanted, except under exceptional circumstances, by the Schaeffer or prone pressure method. With the arms extended, the exchange of air in the Schaeffer method is very much greater than in any other manual method. This fact, in itself, is of sufficient importance to recommend it above all others. Add to it, however, the ease with which it can be administered by a single individual, unaided and practically unskilled; the tremendous relief from the necessity of giving attention to the tongue, that unruly member, which in states of arrested respiration so many of us have found to our discomfort to be even more unmanageable than the Scriptures would imply; and the absence or extreme remoteness of possibility of fracture of the ribs or injury to the liver; one or the other of these being a matter for very serious consideration in the other manual methods, it would seem that no one should hesitate, but at once accept the Schaeffer method as the very best manual method for producing artificial respiration.

The mechanical devices to be considered in this paper are the pulmotor, the lungmotor and the production of artificial respiration by the use of the Meltzer method.

The pulmotor and the lungmotor are very extensively advertised by the firms supplying them. The results achieved through their aid are given wide publicity in the newspapers. They have been purchased by police departments, fire departments, gas and electric light companies, in every one of which organizations the public in general feels a very vital interest. It is therefore only a matter of course to hear the merits of these instruments discussed freely by people who have scant information concerning the principles of their construction and much less knowledge of their action on the delicate tissues of the body.

The claims of superiority as put forth by manufacturers of the pulmotor are that it is absolutely automatic; that it always administers oxygen with the air; that there are no complicated intratracheal tubes to be adjusted; and that as soon as a pressure of .29 of a pound per square inch is developed in the lungs the exhaust action is automatically started and continued until a predetermined vacuum pressure is reached.

These claims are met by the following objections: The percentage of oxygen in the air-oxygen mixture is fixed at approximately 26.75, an increase of less than 6 per cent. above the amount of oxygen contained in atmospheric air; it is often desirable, especially in cases of carbon monoxid poisoning to administer pure oxygen. What assurance is there that the air does not enter the stomach instead of the lungs? Is there any guarantee that the lungs have really been inflated when the pressure of .29 of a pound per square inch is reached, or may there be an obstruction in the upper bronchi or trachea which thus allows such pressure to be indicated and an erroneous impression of the efficacy of the instrument to be given? It is of a delicate mechanism, which may mean failure at a critical moment. The alternative of keeping on hand, constantly, a large supply of oxygen, or of having a piece of apparatus possibly inoperative when it is most needed is always to be considered. But the most serious objection from a physiological point of view is the fact that it removes the air by suction, a process very unlike the natural expiration and one in which may occur collapse of the air vesicles which cannot be overcome with the succeeding inflations.

The advantages adduced for the lungmotor are that it allows air or oxygen, or a mixture of the two in any proportion, to be administered; that it is not automatic in action, but at all times under the direct control of the operator; that it is readily adjusted for varying lung capacities; that there is no possibility of air being forced into the stomach instead of into the lungs. All of these claims seem to be well borne out, but the chief objection to this instrument as to the pulmotor is the suction created in removing the air from the lungs. Because of this action, which differs so widely from the natural process and which exerts on the lungs a force to which the alveoli are so unaccustomed, it is difficult to measure the amount of damage that may be accomplished particularly if suction is carried on over a long period of time.

In justice to both of these devices, it must be stated that they have undoubtedly been used in hundreds of cases of arrested respiration with apparently excellent results. Many men are living today who attribute their rescues to the pulmotor or the lungmotor. If in these instances the lungmotor had been used instead of the pulmotor or the pulmotor instead of the lungmotor, or if neither had been used and manual methods of artificial respiration alone had been resorted to, would the results have been different? Who can say?

A third mechanical method of artificial respiration has been devised by Dr. Meltzer, head of the Department of Physiology and Pharmacology of the Rockefeller Institute for Medical Research. Recommended by the American Medical Association and acting as a member of the Committee on Resuscitation from Electric Shock and also as a member of the Committee on Resuscitation from Mine Gases, Dr. Meltzer carried out a long series of experiments on pharyngeal insufflation as a method for producing artificial respiration. The apparatus he used feeds either air or oxygen directly into the mouth and nose by means of a tightly fitting mask; or it may be led directly into the pharynx through a tube of such size and shape that the air is prevented from escaping through the nose. Air is prevented from entering the stomach in large quantity by heavy weights fixed so as to compress the abdomen. Air from a foot bellows, or oxygen under pressure, the supply of both being regulated by a safety valve, is allowed to enter the pharynx through the mask or the pharyngeal tube. As all other avenues of escape, except the trachea are closed, the entering air or oxygen must apparently enter the lungs. To remove the air a valve is turned which at the same time that it shuts off the supply of oxygen or air, allows free exit for the air in the lungs. This air is not removed by suction, only by the natural recoil of the parts that have been expanded by the entrance of the air or oxygen.

This apparatus overcomes the objection offered to all other mechanical devices for artificial respiration—the withdrawing of the air from the lungs by suction. It has been deemed of sufficient merit to be recommended by the Committee on Resuscitation from Mine Gases, for use in all cases of suspended or inadequate respiration. This recommendation was made eighteen months ago. Have you been using it in your cases requiring resuscitation? If so, to what extent? Do you find it practicable and adequate? If you are not using it, are you using the pulmotor or the lungmotor and with what success? What position do manual methods of artificial respiration hold in your estimation? Do you recommend them in preference to other methods or merely as first aid devices? Answers to all of these questions or to any one of them, or remarks on devices that have not been mentioned here are the points on which we all want information. Let us hear from you, gentlemen.

Chairman: I am sure we have all listened with very great interest and profit to this most excellent paper by Dr. Bricker. There is hardly a day passes that we do not pick up the daily papers and read accounts of some one of the mechanical aids to resuscitation. The subject is one of vital importance to all of us who represent the mining, electric light, water and gas industries, and it seems to me that you men ought to know a great deal more about these machines than those men who sit behind mahogany desks and write the advertisements. I therefore hope to get some free, frank discussion, some accounts of actual cases. I, myself, know of one case which was lost when the prone pressure method was stopped and mechanical means was applied. We are here, gentlemen, for the interchange of ideas and I hope you will all be free to tell of your experiences.

Dr. J. W. Luther, New Jersey Zinc Company, Palmerton: We see quite a number of cases of carbon monoxid poisoning and we have been using the pulmotor in severe cases. I must say, however, that it is not quite efficient. I have been considering changing it and I am very glad to have heard this paper. I do not like the lungmotor. I do not like the principle of it. Scarcely a week goes by that we do not have one or two cases of carbon monoxid poisoning. We have lost only two cases in the last two years but I believe that would have been the result if we had used the prone pressure or any other method, just as well as with the pulmotor.

Dr. George O. Evans, Oliver Iron and Steel Company, Pittsburgh: I have had occasion to see the pulmotor used in the case of a fireman who was overcome by smoke. He had been in the building possibly fifteen or twenty minutes when he was brought out. The pulmotor was used without any effect. In fact, the man died.

In our work we occasionally have cases of men being overcome by gas and we have practically done away with the pulmotor. We have been using the Schaeffer method. This method has been satisfactory as far as our needs require. I remember one case of a man who came in contact with a live wire of about 550 voltage. He was unconscious possibly a half hour and was resuscitated by the Schaeffer method and is well and working today.

Chairman: The very great advantage of the Schaeffer method is the fact that you can teach a layman how to use it so that it will bring results; but with the other artificial methods the experience that I have had has been that unless you have a man that is absolutely trained in the use of the pulmotor and lungmotor, they are apt to produce a very serious disarrangement of the lung tissues. They should be handled only by men trained in their use. They can not be turned over to the layman.

Dr. C. A. Lauffer, Westinghouse Electric and Manufacturing Co., East Pittsburgh: We have had considerable experience with the prone pressure method. In the last six years I have instructed three thousand men in the Schaeffer method and they have given good account of themselves. We have had at least seven cases resuscitated in the plant and a number of men have used this method outside of the plant. One interesting case was that of a fellow who had attempted suicide by hanging. He was blue in the face and was pronounced dead by a physician who was called. One of our employees resuscitated him but it took a half hour's work. We have had men who have come in contact with live wires with voltages up to 120,000 knocked out, practically dead, but for the work of our men. We have had one man burned at the elbow, the wound being larger than a hand and exposing the muscle. He was resuscitated in about forty minutes. I have a printed description of some of these cases which shows the results obtained by this method and I will be pleased to send a copy of it.

Dr. Mitchell Bernstein, Philadelphia: I might say that as far as first aid instruction to the Boy Scouts is concerned, we have suggested a modification to the Schaeffer method. Pressure is made by counting 1, 2, 3 and then quickly released. We have found that we get better results by releasing the pressure quickly than by releasing it slowly.

Dr. Lauffer: I wouldn't consider it a modification. I never do it any other way, that is to take the weight off suddenly and permit a recoil. The pressure can go down gradually but the weight is taken off suddenly to permit a recoil.

Dr. A. W. Urmson, Carnegie Steel Co., New Castle: The first-aid crews of the Carnegie Steel Company are taught to perform the different methods of artificial respiration and then as soon as they can obtain the pulmotor, to apply it. The pulmotor has been adopted by the Carnegie Association. It has always given very good results and I know of no case where we have had a fatality. We had a case where it was necessary to use the machine for forty-five minutes before respiration was thoroughly established. We then removed the mask and applied the inhalation mask and oxygen, and then sent the patient to the hospital. This was our worst case.

Chairman: Do you allow a layman to use your pulmotor?

Dr. Urmson: We train them thoroughly in how to apply the pulmotor and how to use it. Of course, there are trained crews in almost every part of the plant—men who will not lose their heads.

Dr. R. W. Rubin, Westmoreland Coal Company, Philadelphia: The case that the doctor has just spoken of shows that the pulmotor was efficient. The fact is, though, that it was efficient because he could not get any air and no other mechanical means was used. I remember a case of a new-born infant. We tried the pulmotor for about forty-five minutes but to no avail. Finally we used the mouth to mouth insufflation method and that was the thing that brought the child around. It could not be used for an adult.

Dr. J. B. Hileman, Pennsylvania Railroad Company, Harrisburg: I have been on committees of various railroads that have considered the pulmotor and the lungmotor. We could not be prevented from making various objections to these machines but we were well satisfied with the Schaeffer method. We have not formally adopted them. We have decided that the best way to instruct employees in applying artificial respiration is to have each individual both use the method and be the victim. It is by being the victim that you appreciate its being properly done. No one knows how to use it unless he has had it tried on him. The only marked experience which I have had was with a man who came in contact with an arc-light wire and the current was strong enough to burn off both his little fingers. He was brought around by the prone pressure method in about fifteen to twenty minutes.

LAWS OF PENNSYLVANIA RELATING TO INDUSTRIAL HYGIENE

FRANCIS D. PATTERSON, M.D.
Chief, Division of Hygiene, Department of Labor and Industry
HARRISBURG

There is no more important subject before the industrial world today than that of the hygiene of occupations or in other words the prevention of vocational diseases and industrial accidents.

Health is the principal capital of the working man and any impairment of that asset due to vocational disease or industrial accident is a tragedy often attended by poverty and hunger. Progressive manufacturers have come to realize that the good health of their work people is an essential to business success. An impairment of health in the worker means decreased efficiency and a corresponding increase in manufacturing costs. The importance of conserving the health of workers has within recent years been realized by the lawmaking bodies of all civilized countries and all have adopted laws relative at least to some phase of the question.

The scope of this paper does not include the detailed consideration of this vast amount of legislation. It is a rightful function of the state to throw around the labor that resides within its borders the protecting cloak of laws for the prevention of vocational diseases and accidents. Those workers whose health is permanently impaired as the result of their labor eventually become a financial burden on the state.

The first legislation by England on this subject began by the investigation of a Royal Commission which was followed, in 1833, by the passage of a "Factory Law" by Act of Parliament. Labor legislation in Germany dates from 1859 and in France from 1874. A consideration of all the legislation would cover countless pages.

The first law in relation to labor in our commonwealth was passed in 1713, and deals with the subject of "apprentices." In the more than two hundred years which have since passed, many labor laws have been created; some later amended, and still others repealed. There are, however, some laws which have a direct bearing on our subject, and these will be briefly considered.

I.—Factory Act No. 226 of 1905, Section 2, provides that no child under 14 years of age shall be employed in any establishment. Section 3 provides that females shall not be employed more than sixty hours in any one week nor for a longer time than twelve hours in any one day.

II.—The Factory Act of May 2, 1905 (P. L. 352), Section 11, provides for the installation of suitable and sufficient exhaust fans or other devices for the removal of poisonous fumes and gases, and dust from dust-creating machinery.

Section 13 provides for adequate air space, sanitation and lighting in industrial establishments.

Section 17 requires the workroom in bakeshops to be separated from any sleeping room; forbids water closet, urinal, defective drain or sewer pipe to be located in such workroom (the harboring of domestic animals is also forbidden); and provides for a sanitary condition of the floors, walls and ceilings.

III.—The Foundry Act of June 7, 1911 (P. L. 673), amended April 4, 1913, requires all foundries where iron, steel, brass or other metal is cast, wherein ten or more men shall be employed, to be provided with convenient and adequate toilet rooms, equipped with proper washbowls, sinks, hot and cold water; also suitable water closets which shall be separate from the toilet rooms.

Section 2 requires that said toilet rooms and water closets shall be connected with the foundry building in such a way as to afford easy access thereto, without exposure to the open air, and they shall be properly heated, ventilated, cleaned and protected from the dust of the foundry.

The Safety Standards of the Industrial Board on Foundries operative on and after Nov. 1, 1915, contain the following sections relative to industrial hygiene:

Section 1 provides for the elimination of drafts by requiring covered vestibules at the entrances to foundries.

Section 4 requires the removal of smoke, steam, gases or dust by mechanical means of ventilation in all cases where the natural circulation of the air does not carry off such smoke, steam, gases or dust.

Section 5 requires that cleaning and chipping of castings shall be done in separate rooms.

Section 6 requires proper exhaust systems to take care of the dust created where tumbler mills are used.

Sections 9 to 13 provide for proper lighting and heating.

Sections 14 to 18 provide for proper sanitary conveniences, washrooms and washing facilities and lockers, and state in detail what is required, basing the requirements on the number of employees.

IV.—The Department of Labor and Industry Act of 1913 (P. L. 396), Section 9, provides for medical inspection of working places relative to the conditions of work affecting the health of persons employed therein.

Section 10 establishes a Division of Industrial Hygiene, which shall make special inspections and investigations of industrial processes and conditions, with respect to the dangers connected therewith and the precautions necessary to avoid them.

Section 14 makes provision for the reasonable and adequate protection of the life, health, safety and morals of all persons in all places where labor is employed.

V.—The Woman's Act of July 25, 1913 (P. L. 1024), protects the health and welfare of females by regulating their employment in certain establishments with respect to hours of labor and conditions of employment; by establishing certain sanitary regulations in the establishments in which they work concerning wash and dressing rooms, also lunch rooms, seats, exhaust fans and drinking water.

VI.—The Lead Poisoning Act of July 26, 1913 (P. L. 1363), to prevent occupational disease with special reference to the manufacture of certain lead products or compounds, provides as follows:

(1) Employers must provide reasonably effective devices, means, and methods to prevent industrial diseases.

(2) Processes especially dangerous in the manufacture of certain lead compounds are named.

(3) The duties of employers regarding devices and means for the prevention of industrial disease are given in relation to: (*a*) Workrooms—their lighting and ventilation; separation of dusty from nondusty processes; proper cleaning; efficient air exhausts and dust collecting systems. (*b*) Washrooms—separate from workrooms. Equipment: basins with water pipes and two spigots, conveying hot and cold water or suitable troughs, one basin for each five employees; nail brushes and soap; three clean towels per week. (*c*) Shower baths—one for each ten employees, supplied with soap and two clean towels per week; approached by wooden runways, and provided with movable wooden floor gratings, supplied with controlled hot and cold water. (*d*) Dressing rooms—separate from workrooms; provided with a double or two single sanitary lockers for each employee. (*e*) Eating rooms—separate from workrooms; provided with a sufficient number of tables and seats, and kept clean. Cleanliness is required throughout such establishments. (*f*) Drinking fountains. (*g*) Clothing—one pair of overalls and one pair of jumpers shall be supplied each employee, repaired or renewed when necessary, and washed weekly. (*h*) One effective respirator for each employee exposed to lead fumes, gases, or solutions; to be renewed when necessary.

(4) Employees must use the appliances supplied by the employer.

(5) Notices in various languages concerning the known dangers arising from the various

processes, and simple instructions to employees for avoiding them, shall be posted by the employer in conspicuous places in the workrooms, also in the wash, dressing and eating rooms. These notices shall be prepared and furnished by the Commissioner of Labor and Industry. These notices shall be explained by the employer to every employee when he enters such work or processes, interpreters to be provided when necessary.

(6) Every employee engaged in the dangerous processes specified must be examined at least once a month by a licensed physician, designated and paid by the employer; such examination to be made during working hours and at employer's expense.

(7) The examining physician must make a record of the symptoms and certain other specified data in a book provided for that purpose, and kept in the employer's office. This record is to be open to inspection at all reasonable times by the State Department of Labor and Industry, and by the State Department of Health.

In addition thereto, within forty-eight hours after such examination and finding, the examining physician shall send a report thereof to the State Department of Labor and Industry, and to the Health Department of the state, on blanks furnished for this purpose by the Health Department.

A report must also be made within forty-eight hours to the employer, who, within five days, shall remove the employee from any work in which he might be exposed to lead poisoning.

VII.—The Blower Act of July 24, 1913 (P. L. 970), provides for the protection of the health and lives of employees in certain dusty trades by requiring the use of blowers and exhausts with a specific equipment, and regulating the use of such blower systems.

The Safety Standards of the Industrial Board on Polishing and Grinding, operative on and after February 1, 1915, require that approved eye protection shall be provided for all operators on grinding wheels if the operation involves the possibility of eye injury.

They further provide that blowers and exhausts of sufficient size to take care of all dust created must be installed and the minimum suction head allowed in each branch pipe within fifteen inches of the hood shall be the displacement of a minimum of two inches of water column in a U-shaped tube.

VIII.—The most far-reaching piece of legislation, as far as the employee is concerned, enacted by the legislature of 1915, was the Workmen's Compensation Act. This law, as it affects the physician particularly, will be presented to the conference at the afternoon session by Mr. Paul N. Furman.

IX.—The Child Labor Act of May 13, 1915, provides for the health, safety and welfare of minors, by forbidding their employment in certain hazardous occupations, and under certain specified ages, by restricting their hours of labor and regulating certain conditions of their employment; by requiring employment certificates for certain minors; and by requiring attendance at continuation schools by certain minors during the period of their employment.

To obtain an employment certificate, a minor under 16 years of age must first receive from a physician, approved by the board of school directors in the district in which the minor resides, a certificate stating that such minor has been examined by him and that said minor is physically qualified for the employment he expects to pursue.

In making the physical examination the following points are the ones to be especially considered in refusing certificates either permanently or temporarily:

(1) *Certificate Permanently Refused Under the Following Conditions:* (*a*) Tuberculosis—including all types. (*b*) Organic heart disease—including endocarditis, myocarditis, pericarditis. (*c*) Graves' disease. (*d*) Kidney disease. Diagnosis of kidney disease shall not be made without chemical and microscopic examination of the urine. (*e*) Circulatory disturbance causing persistent rapid pulse (120 or over). Such a condition, while a symptom rather than a disease, must indicate a serious disturbance of the bodily economy, possibly incipient disease of the heart, lungs, kidneys or nervous system (already mentioned). (*f*) Vision—less than one third, allowing the use of both eyes and eyeglasses, except after a certificate has been furnished by a reputable physician stating that no degenerative or inflammatory process exists in the eye, and that the eye will not be injured by the employment of the child, as contemplated by the conditional employment certificate, which allows employment where power driven machinery is not used (see Section 3).

(2) *Certificate Temporarily Refused Until Correction of Defect:* (*a*) If three or more decayed teeth exist. (*b*) If vision is defective to the extent of three fourths (using both eyes) or one-half vision in either eye, provided proper eyeglasses will improve the vision.

Otherwise, certificate will be granted, unless permanently refused as per section No. 1, or granted conditionally as per section No. 3. All inflammatory eye conditions until such condition is corrected. (*c*) Chronic nasal obstruction. (*d*) Defective hearing—unless accompanied by trustworthy medical certificate that treatment has been given without success. (*e*) Malnutrition. The grade of nutrition requisite to the procurement of an employment certificate cannot be given in exact quantitative terms. The examiner, however, will consider the height, weight, color of the mucous membranes, muscular tone, nervous tone, bodily vigor and chest capacity. Note that the following standards of height and weight for both sexes should be borne in mind, although considerable variation, within normal limit, may exist: 14 years, 4 feet 6 inches, 83 pounds; 15 years, 4 feet 8 inches, 88 pounds. (*f*) Marked nervous weakness—chorea or hysteria. (*g*) Marked stoop shoulders, flat chest or lateral spinal curvature. (*h*) Hernia without truss. (*i*) Contagious skin disease.

(3) *Certificate Refused for Employment About Power-Driven Machinery:* (*a*) Epilepsy. (*b*) Loss of one eye, arm or leg. (*c*) Vision less than one third, allowing use of both eyes and eyeglasses, with a certificate to be issued only under the precautionary conditions described in section No. 1.

Note. Careful inquiry should be made into the previous history of the child, particularly regarding the history of attacks of scarlet fever, diphtheria, rheumatism, chorea or nervous conditions, frequent attacks of tonsillitis or sore throat, and tuberculosis.

X.—The Bakery Act of 1901, Section 2, provides for the draining and plumbing of bakeshops in accordance with the rules and regulations governing house drainage and plumbing; provides also for efficient ventilation in the same.

Section 7 forbids the employment in bakeshops of any person affected with consumption of the lungs, scrofulous diseases, or with any venereal disease, or any communicable skin affection.

The Safety Standards of the Industrial Board on Bakeshops (operative on and after February 15, 1915) prevent the opening of bakeshops in cellars; provide that bakeshops shall not be used as sleeping and lodging places; provide for their proper drainage and ventilation, and that persons suffering from communicable diseases must not be employed, and that all employees are subject to the medical inspection of the Department of Labor and Industry, and further provide for proper dressing rooms, separate and apart from the workroom.

XI.—The Safety Standards of the Industrial Board on Canneries (operative on and after April 15, 1915) provide that the place where such work may be done must conform to certain sanitary requirements; that proper toilet facilities must be provided; that persons suffering from communicable diseases must not be employed; that all employees are subject to medical inspection; and that rest and dressing rooms must be provided.

Dr. H. T. Prideaux, Pennsylvania Coal and Coke Company, Cresson: From this law, where the employees are physically unable to do the work assigned them, for instance an epileptic, what should be the attitude of the employer to such a man about the mines? Should he be refused employment?

Chairman: That is one of the most interesting questions that can be brought up. What is the ultimate end of the physical defective in industry? The company with which I was connected adopted the rule that where a man was an old employee of the company and had some physical defect, they would try to continue that man in other employment where his physical disability would not make any difference. I know one man who was subject to epileptic attacks and who was running a fifty-ton crane. Now, if he had had an attack while running this crane I am sure it needs no words of mine to picture what would have happened to the end of the building. Therefore, that man was taken off the crane and given other employment. If he had been kept on the crane, he might have caused serious injury to either himself or some of his fellow employees. I do not believe that a man who is subject to such attacks should be employed in such work as running the motor that is bringing cars out of the mines or put in charge of a fan which is supplying air to the hundreds of miners in the mine. He should be given such occupation where he can work for the support of his family without endangering the lives of those who are associated with him in industry.

Dr. Prideaux: I have a special case along this line. A man who has epilepsy was employed around the mine. Now if he should go into the mine to work and have an attack of epilepsy, he might become injured or be killed. This would then be a case where the company might become liable for compensation. I can not see many places where a man of this character could work around the mines without being in danger of being injured.

Dr. John B. Lowman, Cambria Steel Company, Johnstown: The question of physical examination comes up here. I have had considerable experience along this line. We have examined all of our employees in anticipation of the Workmen's Compensation Law. In almost every case, we have tried to take care of all of those physically unfit. The question of how to provide for our tubercular men has been one of our problems. The Cambria Steel Company owns a great deal of farm land and I am trying to get them to divide it into small lots or farms and then send their tubercular men with their families to these lots or farms to cultivate it. In this way they can be working out in the open and yet earn some money. Whether I will be successful in doing this or not, I can not tell, as the company has lately changed hands. We have always tried to take care of all the physically unfit. We do not consider hernia a physical defect but we have always given every man a chance to have his hernia fixed. We reject new men with hernia or with any physical defect or communicable disease but our old men we try to take care of. We give them a chance to correct their defects.

Chairman: The Compensation Law is a very vital one and as we all know this law provides that the employer has lost the old-time common law defenses. These defenses have gone into the waste paper basket. Ever-changing industrial conditions demand new laws. Industrial conditions have changed since the day of the small shop with one or two assistants, when the man who owned the shop had knowledge of the men working there and when every man had knowledge of the men who worked beside him. Times have changed. We now have vast corporations in which the men have absolutely no knowledge of those who work next to them. I wish to bring to the attention of you men that this Commonwealth of Pennsylvania owes to those who have labored in the various industries of the state, and who have either by their labor or by reason of their years become subjects for charity, some assistance by which they will be enabled to live their remaining days without depending on the charity of the state. We have on the statute books of the state a new law which will make this possible.

I contend without fear of contradiction that big business must do more than simply make dividends for those who invest their money therein, and it seems to me that big business owes a duty to those who are making dividends.

I hope that you men will personally discuss this question of the rejection of the physically unfit under the Compensation Act. It is a problem that we have to solve here in this state and there is hardly a day goes by that that question does not come up for the consideration of the Department of Labor and Industry. What is a safe physical condition for a man in one industry is not a safe physical condition for a man in another industry.

Dr. F. S. Arndt, Pennsylvania Coal Company and Temple Coal Company, Scranton: It seems to me that the most important thing that we could discuss at this meeting is in regard to these men who have physical defects. It is a question that I have been puzzling my head over for some time. In the case of a man who has one eye when employed, and during the course of his work he loses the other eye, would the company be obliged to pay compensation for a total disability or for just partial disability? It does not seem proper to me to make the company pay for total disability. It seems to me that it is a very risky thing for a company to employ a man with one eye if they are going to be obliged to pay for the 500 weeks' disability. At the present time we are examining our employees. We have something like 22,000 and have examined probably 5,000 since the first of January. We have not completed a report on these examinations as yet and I believe we have had some cases come up already where the men claim that they have contracted their disability while at work in the mines. We do not know whether they have or not. We will know hereafter. We will have a report of such disabilities and it seems to me that if we could get anything out of these meetings with regard to such cases we would be repaid for coming here. I feel that I would be repaid for coming here if I could find out what we are to do for the employment of these men who are disabled. I have taken the stand that we will not employ a man with hernia and the old employees who are suffering with the same disability are to take every opportunity to correct the same. There are not many of our employees who have hernia but I have requested, after examination, that they wear a truss and see that it fits properly.

This question is not one-sided. The company must pay out this money and must pay surgeons for taking care of these injured men. They ought to have a fair and square deal and if they are compelled to pay compensation to these men, who are disabled, it seems to me that it ought hardly to be expected that they should employ men who have physical defects. They know that it is going to throw a great many men out of work. Our company is not going to discharge anyone, but it is necessary for us to protect ourselves.

In regard to the employment of men with epilepsy, there are not many places around the mines where you can use such a man safely. Outside work is the only work that he can do.

I would like to say that in the talk here about artificial respiration, it seems to me that it would be of interest if we had a demonstration of one or two methods of performing artificial respiration. I believe it would be well to demonstrate both the Silvester and Schaeffer methods. I attended a meeting of the Resuscitation Committee appointed by the American Medical Association some years ago and we had a demonstration of the different methods; I believe it was interesting to the men who were present. I am quite in favor of the old Silvester method but I believe that sometimes, when it is performed, it is not performed properly. I have been teaching scores of first-aid men and I rather prefer that method, although I teach them the Howard and Schaeffer methods as well.

Chairman: It is not possible for me to speak for the Compensation Board. I am not a member of that board and therefore I can not say to you gentlemen what the rulings of the board are going to be. I can only tell you what the rulings of other compensation boards have been. It has been the experience in other states that a man who is in industry and who has lost one eye and in the course of his employment loses the other, the compensation is payable for total disability. The same is true of the man who has one arm. What the ruling will be in this state we will have to wait for until the question comes up.

In regard to the subject of rejecting men with physical disability, it is not possible for us to say what industrial companies are going to do in regard to the employment of new men. But if the reports which I get throughout the state are true, the shortage of labor inside of the next year will be such that every man is going to get a very glad welcome in most of the industrial establishments.

I want you men to extend a most cordial invitation to any physician that you know to come and join with us at the next meeting. I want these meetings to be of interest to everybody. We are not going to be confined to the subject of lead poisoning or to the hazards of the cement or steel industries. We want to make the meetings such that everybody can come here and listen with interest and profit.

This subject of the employment of the unfit is one that has come up before this meeting and I hope you will not hesitate to get up and tell us what your experience has been.

Dr. E. W. Cross, Ford Colleries Company, Curtisville: In the use of the term "injury" does it apply to occupational diseases. Shall we interpret this term as due to drastic change in the structure of the body? We should like to have a broad understanding of the word "injury" as it often comes up in our work. Do the various occupational diseases come under this term? I should like to have a definition of the term "injury."

Chairman: The only way I can answer your question is to say that the definition of the term "injury" as given by the Compensation Board is that an injury is violence to the physical structure of the body. I am convinced that occupational diseases are not included under the ruling of the Compensation Board, as there is not violence to the physical structure of the body. A case in point would be a man who is working constantly at an emery wheel and if that emery wheel breaks and hits the man, that case must be reported as one which comes under the Compensation Law.

Dr. Cross: We received a letter a day or two ago that a man received an injury while working for our company and that he died from pneumonia and they claim compensation. They claim that his death was due to pneumonia which was a result of the injury. I do not know what the injury was, but I know it was not serious, as I see all of the serious injuries.

Chairman: In answer to that question, according to the Pennsylvania law, I can not see where it would be regarded as coming under the Compensation Act. I can cite only two cases of this kind in other states which would interest you. In Massachusetts a man was sent out by a company in a leaky rowboat. He was in the water for a considerable period of time and contracted pneumonia. His company was required to pay compensation. The other case which I know of, occurred in Wisconsin and has just been decided by the Supreme Court. A man was employed in a certain plant and he developed typhoid fever and died. His widow at once made claim for compensation which the company declined to pay. The widow obtained a verdict on the ground that the typhoid fever had been contracted in the course of his employment. The case was then taken to the Common Pleas and from there to the Supreme Court, which held that the widow was entitled to compensation. I have read the Wisconsin Act and, while the decision in this case was made by the Supreme Court, I believe such a decision is amiss unless they can positively show that that man never drank any water or ate food outside of that plant.

I would remark that the Compensation Act distinctly provides and urges a postmortem in every case where there is a fatality so that you may determine as to the direct relation between the accident and the death of the man. I would urge that this be done in every case.

Dr. J. B. Rogers, Philadelphia and Reading Coal and Iron Company, Pottsville: I want to ask this question. I was sent by the Philadelphia and Reading Coal and Iron Company in consultation with another physician of the company to see one of their men who alleged that he had been injured by being struck on the chest by a rail. Neither the physician in charge of the case nor myself could find the resultant injury. The man died about four days after our visit. He died undoubtedly of a complication of diseases, as he was troubled with an asthmatic condition, dilated heart, etc. I was also sent to have a postmortem made. The coroner of the county was present but the widow refused positively to allow the postmortem to be performed. We secured the assistance of 'the state police, but the widow made so much trouble that the coroner decided not to push the postmortem. They claim that death was due to the blow but we can honestly say that there was no injury at all on his person and we should have liked to have a postmortem.

Chairman: Where you can not get a postmortem, your hands are tied. It would seem to me that the referee and the Workmen's Compensation Board would decide that the burden of proof is on the widow to prove that the man died of this injury, that the blow which he received on his chest was the direct and immediate cause of his death. I know in moments of great sorrow that people are apt to be suspicious. In a case like this, I would contest the claim and, in consequence thereof, the widow will have to prove that the man died from the injury.

Dr. Rogers: I might bring up another question that has been troubling us. If a man is injured and the employer offers medical service to him and he declines, is the employer liable for compensation?

Dr. Arndt: That question has been taken up and argued and we understand the attorney of the Pennsylvania Coal Company says that they will get compensation. This question has been argued for and against.

Chairman: In answer to this question, I shall read part of paragraph *e* of Section 306 of the Workmen's Compensation Act No. 338:

"If the employee shall refuse reasonable surgical, medical, and hospital services, medicines and supplies, tendered to him by his employer, he shall forfeit all right to compensation for any injury or any increase in his incapacity shown to have resulted from such refusal."

I would say that there are cases already on record in which employees have made claim for compensation who have declined to accept the medical services offered by the employer and the Compensation Board has refused to allow the compensation. They do not have the alternative of accepting or declining the medical service offered by their employer.

Dr. Arndt: What is to be done in the case of a man going to the hospital and staying two or three months; who is to pay the hospital fees and physician's attendance after the fourteen days?

Chairman: It has been held in other states that in that case the physician and the hospital may look to the man to pay his own bills out of the compensation. The company is liable only for the first fourteen days of the disability.

Dr. F. U. Ferguson, Tunnel Coaling Company Gallitzin: In cases where the work amounts to more than the so-called flat rate, where it may conflict with the medical society's fee, what is to be done then?

Chairman: I believe the best way to overcome this would be to have the insurance companies and your medical societies get together and formulate a schedule of fees. I am sure the insurance companies would be willing to make this schedule satisfactory to the medical profession, as they have always been treated fairly by the medical profession. I believe the answer to this whole question is for your county medical societies to get busy in two directions: First, to study the law, and, second, to bring the matter before the state legislature. I will state here that while every interest was represented at the hearings on this law during the last legislature, the medical profession seemed to be satisfied not to pay any more attention to it than if it was not before the house or senate. I think we should all get together and have a heart-to-heart talk over the matter and try to straighten it out satisfactorily to all concerned.

Dr. Thomas W. Jackson, H. K. Mulford Company, Philadelphia: I have listened to these different questions and it seems to me that we are face to face with this question, which I would state in this way. Is it not an obligation of the physician representing an industrial corporation to make his examination of applicants without any sentimentality? Does the physical disability of an applicant call for a recommendation of rejection? Admitting our professional obligations, have we as representatives of these corporations anything to do with the fate of the applicant? The question of the employment of physical defectives should be put up to our various companies for decision. The responsibility should rest with them and the question of maintenance of the physically defective is up to the public and the state government, of which we are a part. All these other questions are very interesting but it seems to me that the whole question comes down to this statement.

Chairman: I sincerely agree with you. The problem is one that has brought us face to face with the material change throughout the United States. Are we to go over to the German system which in substance provides that those who cannot work must be given a livelihood at the expense of those who can toil? What the answer is going to be in America, I do not know and I question whether you or I will live to see the end of the changes which this Compensation Act and various other acts have brought into place.

Dr. Jackson: I spoke only of our individual obligation to the people we represent. Can we separate this obligation?

Chairman: Each man must be the keeper of his own conscience in these matters and certainly the state of Pennsylvania will not be willing to resolve itself into a charity hospital. At the same time I hope that you all realize that the real meaning of physical examination is the classification of the man or woman in his or her proper place in the industry and that is what I hope will come out of these meetings. In the corporation in which I was director, they, in the past, have tried not to use our physical examination as the means of getting rid of the undesirables but to use it as a means to find out where the men ought properly to be placed. You examine the coal as it comes out of the mine, you test your materials in their various processes of evolution to the finished product and I contend that the most valuable raw material is the human labor and that raw material should also be tested to find out what its qualities are and where it belongs in the industry. It is foolish to take a man of slight frame and put him at heavy work. He may have a keen mind and I want to urge on you men to place your raw material where it best belongs; in other words, where it is going to give the best service for the greatest good.

Dr. Arndt: There is a way out of this. In New York State a company can have a man who is disabled sign an agreement that he will not ask for further compensation if he is hurt. I understand you cannot do that in this state. Now if a man has one eye out, if he would sign an agreement that if the other eye is injured that he will not claim total disability, I would approve an application for employment under such circumstances.

Chairman: The following is the law on this subject, Article II. Section 204 of the Compensation Law: "No agreement, composition, or release of damages made before the happening of any accident, except the agreement defined in Article III of this act, shall be valid or shall bar a claim of damages for the injury resulting therefrom; and any such agreement, other than that defined in article three herein, is declared to be against the public policy of this commonwealth."

Dr. Arndt: I understand it is up to the corporation. Each corporation must be a law unto itself. The law is defective and throws the hardship on the working man. It places the company in such a position that they can not assume this responsibility. We can not employ a man with one eye and give him total disability. It seems to me that there is a chance for change in our law.

Chairman: I believe if a man with one eye applies for a position and finds he can get work at one place, he will find other occupations in this commonwealth where he may work with one eye with absolute safety. There are plenty of positions where he would not be in danger of losing his other eye. I do not think we need worry about where these fellows are going to get a job.

Dr. G. E. Dietrich, Worth Brothers Company, Coatesville: In a corporation where a man has been employed for twenty-five years and he becomes disabled, they are liable to keep him in employment in the future.

Chairman: I should think so. They have a heart.

Dr. H. Y. Horn, Atlas Cement Company, Coplay: With regard to the section in which it says that the employer must pay as high as $25 for hospital service, suppose you send a man to a hospital and the rate of that hospital is $1.50 per day. For two weeks that would be $28. Has that hospital a right to send a bill for $28 to the employer? Has it the right to send a bill for more than the $25 specified in the law?

Chairman: The only answer I have is that they can send the bill but they can collect only the $25 for the first two weeks' disability.

Dr. L. A. Shoudy, Bethlehem Steel Company, South Bethlehem: The Bethlehem Steel Company has always made it a point to pay the hospital ward rate and for whatever hospital supplies that are necessary, regardless of the length of time. We have had cases as high as five months at $2 a day. Now some hospitals have tried to compel us to pay this $2 a day and also pay for supplies for certain injuries that cannot be compensated under this law.

Chairman: This cannot be done, as I see it.

Dr. Shoudy: Suppose a man is working in the works and injures himself on the fourth of the month. He does not report the injury at the time but comes to us on the tenth of the month. He is laid off for a period of three or four weeks. Are we responsible for compensation?

CHAIRMAN: The law states that the employee must report his injury to the employer before the fourteenth day after the injury.

The Conference adjourned at 12:15 p. m. to meet again at 1:30 p. m.

AFTERNOON SESSION

The chairman called the meeting to order at 1:30 p. m.

LEAD POISONING

FRANCIS D. PATTERSON, M.D.
Chief, Division of Hygiene, Department of Labor and Industry
HARRISBURG

Of all the industrial poisons lead is the most widely used, being a more or less essential part in over 150 trade processes whose employees, to the number of many thousands, are exposed to its dangers.

The use of lead in industry dates back to ancient times, the writings of Hippocrates show that he had knowledge of the symptomatology of Saturnine colic and tradition states that Raphael and Michael Angelo were familiar with the fact that pigments containing lead were poisonous.

It is of interest to remember that the modern method of the production of carbonate of lead by the so-called "Old Dutch" process is identical in principle with the process which was in use in the days when ancient Rome was in the height of its glory.

Of all the industrial poisons lead is the most productive of ill health by reason of the fact that there are more employees exposed to lead in some form than to any other industrial poison. The onset of poisoning is insidious and therefore the worker does not know he has been affected until he presents the clinical evidence of a marked case of the disease.

The three channels through which absorption may occur are: First, the respiratory tract; second, the gastro-intestinal tract; third, the cutaneous (in the order of their importance).

Dust or fume in the air is the chief source of industrial poisoning and Goadby has conclusively shown by his experiments on animals that dust which is inhaled is far more dangerous and produces symptoms sooner than does the direct ingestion into the stomach of a very much larger quantity of a similar compound of lead.

Lead is soluble in the gastric juice and after its absorption through the intestines it may go either directly into the blood stream through the lacteals, or it may be taken directly to the liver through the portal circulation.

All lead is not equally poisonous. The sulphate is more soluble and, therefore, more poisonous than either the carbonate or the oxid.

The dominant symptom of lead poisoning is colic, which has certain characteristics. The pain is generally referred to the lower quadrant of the abdomen and is characterized by periods of marked exacerbation and remission; it may be so acute that the patient lies with legs drawn up upon his abdomen and with an expression of agony on his face. Firm pressure on the abdomen does not increase but tends to relieve the pain.

The abdominal muscles are board like in their rigidity. During the periods of increased colic the pulse rate becomes very slow and vomiting may occur. Colic is usually preceded by constipation or diarrhea and for some time previous there may be found loss of appetite, a metallic taste in the mouth, headache, loss of weight, progressive anemia, and a blue line on the gums may or may not be present.

Repeated attacks of colic are followed by wrist drop: it is rare that the latter occurs as an early symptom of poisoning. It is to be remembered that lead poisoning is a "symptom complex" and that individuals vary in their susceptibility to this poison. Age is a factor, the young are more susceptible than the old, and the susceptibility of females has been recognized for years, so much so that in some localities they are excluded from working in lead by law.

Certain conditions predispose to lead poisoning, notably alcoholism, chronic constipation, defective teeth, gastro-intestinal disorders and syphilis. The essentials of treatment of a case of acute colic are to get the bowels open by high enemas and if necessary to give morphin and atropin to relieve the pain.

There is no condition where the ounce of prevention is more important than the pound of cure than in lead poisoning. The collection of all dust and fume at its source will prevent the occurrence of poisoning and this can be accomplished by proper exhaust systems and by the substitution of vacuum for dry sweeping. The periodic physical examination of all workers in lead is essential and those who show signs of lead accumulation should be barred from future work in the industry.

MR. A. P. WETHERILL, Wetherill and Brother, Philadelphia: I came here to learn something about the lead industry and I have learned a lot that I did not know before. I am going back to our works and am going to try to prevent any man from inhaling dust. That is one of the things I have gathered here.

I read the last article on "Lead Poisoning" in the *Monthly Bulletin* coming up on the train and I found in there things I had never known before. It is one of the best written articles I have seen. I thank you for allowing me to talk to so many doctors. I never was with so many doctors before.

Chairman: Has Dr. Marshall anything to say on lead poisoning?

Dr. Alfred C. Marshall, Powers-Weightman-Rosengarten Co., Philadelphia: There is nothing I can add to what Dr. Patterson has told you. We have very little lead at our plant and we have not had a man leaded in three years.

Dr. William Scull, John T. Lewis and Brothers Company, Philadelphia: I came here today to try to learn something about the lead proposition and to find out what constitutes a case of lead poisoning. Already the chairman has told us that he does not know. That is one point we want to find out. How are we going to tell that a person has lead poisoning? If we, who are working in lead plants, can not tell when a man has it, how is an outside doctor going to tell? I know a man who went to a certain hospital and they said first that he had indigestion, then that he had asthma, and then that he had lead colic. My experience at Lewis Brothers in the last four years has been that the best way to treat a case of lead poisoning is not to let a man get it. In 1913, I reported ten cases to the Bureau of Labor, in 1914 eleven cases and in 1915 five cases. Now, if I see a man who has colic, I give him a high enema and if he is all right in a day or two, I do not consider that a case to be reported. No doubt, he has had a symptom. If, however, he goes along for two or three weeks, is slow recovering and has loss of appetite, I think that man has really a true case of lead poisoning, whether he has the blue line on the gums or not. Some cases have had the blue line for twenty years. Blue line is no indication that a man has an attack of lead poisoning.

Last year we made quite an improvement over the other year. As far as examining the blood and urine is concerned, it does not give us anything that the other tests do not give. I know of a few cases where basophilic degeneration of the red corpuscles was found in typhoid and diseases other than lead poisoning. We have a whole lot to learn on this question. What are we going to learn and what are we going to do about it? I know of another case of a boy who had a blue line on his gums and who died of diabetes; the parents brought suit against the company, claiming that he died from lead poisoning. When the case came up to court, the first trial was nonsuited, the second trial was in favor of the company and a third trial is still pending. If a man works anywhere near a lead plant, lead is always held responsible for his death or sickness. I occasionally give men like those in the first case a dose of iodid of potassium. If I see the patient inside of a week or two, he gets well in most cases. I have found that real lead colic cases are those which have had no treatment whatsoever.

Dr. E. N. Piper, National Lead and Oil Company, Pittsburgh: There seems to be but one thing necessary in the discussion of the lead problem and that is to prevent lead poisoning. I am connected with the National Lead and Oil Company and up until about three years ago, I looked after the cases of lead poisoning that occurred in the Sterling Works of this company. I saw those men only that were sent to me and those men only were sent who were suffering from acute lead poisoning. It was a rather common thing to have a man come into my office with lead colic so bad that he rolled on the floor with pain. Of course, I took care of those acute conditions but up to the time this law came into effect I did not have any particular supervision over the lead cases at that plant. After the passage of the law that introduced medical inspection, I went to the mill and inspected the men and since the passage of this law, I have seen only two cases of lead colic and those cases happened to be men who had been there ten to fifteen years. Men who have been employed since then have not had lead colic.

I am glad the question as to what constitutes lead poisoning came up. It seems that no one is able to tell just what constitutes this disease and I think I will go along and do as I have been doing. Now there is a matter which comes up and which I can not explain to my own satisfaction. A man will be in a plant for a year or probably two years and not get leaded; another man will be in a plant only a few months and be leaded. I can hardly believe a man can work in a plant for one or two years and not get some lead. I have now in our mill two or three old employees, one of whom has been there fifteen years working with lead, and seems to be a fairly strong, healthy man, but personally I feel that that man would be better if he were placed in another position. He told me that he is immune to lead poisoning and that lead does not affect him. It is a case like that which makes it difficult for a physician to decide what is a case of lead poisoning.

Chairman: In a case like that I would recommend that that man be transferred to some other part of the plant for a short time. I think you would find that he would pick up to an extraordinary extent. A change in occupation is one of the salvations for the man who is working in the dusty trades. Place him in some other part of the works.

Mr. Wetherill: I was asked this morning what is the shortest time in which a man can contract lead poisoning. In our works, the man who has worked there the longest (fifty-six years) is not recorded as ever having had lead poisoning. About 20 to 30 per cent. of the men who work there today are on our pension roll. Our pension system is this, if a man works there five years, we give him $5; if he works there six years, we give him $6, and so on. We have on that roll anywhere from 20 to 30 per cent. of our men and they range from five to forty years in length of service. I should say that those on this roll would average somewhere around twenty years in the employ of the company. Many of them have not had lead poisoning. It shows to my mind that some people are very much more subject to it than others.

Chairman: The shortest time in which a man was leaded that I know of, is the case reported by Dr. Alice Hamilton, in which a man worked only three days in lead and got leaded. I, myself, never saw a case that approached anything near that.

Mr. Wetherill: Do you not think that when a man goes from the lead works to the hospital, if he should receive medical attention from a man who was familiar with lead poisoning he would get better quicker than he would otherwise?

Chairman: With regard to the question of the diagnosis of lead poisoning, I would say that it is like any other specialized branch of the medical profession. My experience has been in the larger hospitals that they are too prone to diagnose all cases coming from lead works as lead poisoning, entirely overlooking the fact that they may not have been exposed to lead dust. I believe that the diagnosis of these cases should be made by those who are familiar with it on the symptoms rather than on the fact that the patient had been employed in a lead plant. If you have any cases of that character, I would recommend that you have your own doctor make sure whether or not the patient is leaded.

Mr. Wetherill: We had a man who had some kind of fit and fell on a cement floor. He was sent to the hospital where it was said that he had lead poisoning and that he had had a lead fit. His wife came to see me to find out how sick he was and I told her that the man was only injured from the fall. The man died from a fractured skull caused by his fall on the cement floor.

Dr. Scull: Does one attack of lead poisoning predispose to another? Or, does one attack prevent men from getting another attack? I believe the Bureau of Labor holds that a man who had wrist drop five years ago has recovered sufficiently to go back to his old job. They believe that a man could go back to lead working with impunity. I had several cases of lead poisoning in which the patients show no symptoms of lead whatsoever at this time.

Dr. G. M. Coates, Wetherill and Brother, Philadelphia: It seems to me that it does not matter to us whether one attack of lead poisoning predisposes to another or not. The point that we want to get at is whether a man has an attack of lead poisoning and what are reportable cases of lead poisoning. I understand that a reportable case is any case in which the occupation is changed to a less hazardous one. I believe, of course, that a change of occupation is essential to keep in good health. I understand the law says that if we change a man from his work in lead to other employment, that constitutes a case of lead poisoning. I think that statement is made. Is not that correct?

Chairman: The law wants to draw around the workers in the poisonous trades an extra cloak of protection. I think the majority of the textbooks of those experienced in lead state that one attack of colic predisposes to another attack.

Dr. Randall Zimmerman, Westinghouse Air Brake Company, Wilmerding: I want to call your attention to the talk which Dr. Thompson gave in New York. He stated that one attack certainly does predispose to another attack of colic. In regard to the length of time necessary for one to contract lead poisoning, he stated as a fact that a lead worker, for some reason or other unknown to him, likes to go back to lead, and if in the course of application for a position he is asked whether he has ever worked in a lead factory, he will deny it so that he will be accepted. He knows that if he is accepted as a worker, he will undoubtedly be leaded again.

Chairman: I know it to be a fact that men who have contracted lead poisoning in the smelting plants of the west and who have come east for work will at once go into their old trade of working in lead. Such a man may deny that he ever worked in lead plants before but he is sure to become leaded again if he goes back into the lead industry.

THE WORKMEN'S COMPENSATION LAW AS IT AFFECTS THE PHYSICIAN

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Before saying anything about the medical aspect of the Workmen's Compensation Act, I should like to say this, that we are all simply students. There is a great deal about it that we do not know. The more we study it, the less we find we do know about it.

The Workmen's Compensation Board is now engaged in trying to settle some of the very intricate problems that the act has brought out. Our efforts all along the line have been greatly facilitated by the great assistance which the employers of the state have given us. It is wonderful the extent to which they have gone to give us help to make this act workable. Almost without exception this applies to all the larger employers; they have expressed their greatest willingness to do anything they can, and they have said, "Tell us what you want us to do, and we will do it." There are in some instances a number of employers who are paying their employees more compensation than the act calls for. There is no objection to this. We call the employer's attention to it and if he says that he knows what he is doing, we are perfectly satisfied.

The United States Steel Corporation sent their attorney before the board to say, "Gentlemen, we are for this law to the letter and we want you to know that, if a complaint comes to you that we are not paying the proper compensation, if you will let us know what is proper we will make that man satisfied." That is the attitude that has been taken by practically every employer in Pennsylvania.

A close inspection of the Pennsylvania Workmen's Compensation Act in relation to the medical profession will disclose some phases of extreme interest to the physician. Section 301 of Article III declares that the terms "injury" and "personal injury" as used in the act shall be construed to mean only violence to the physical structure of the body, and such disease or infection as naturally results therefrom. It further declares that the term "injury by an accident in the course of his employment" shall not include an injury caused by an act of a third person intended to injure the employee because of reasons personal to him, and not directed against him as an employee or because of his employment.

The reason for that being placed in the law is because of a case which came up in another state. The case was one in which a girl stenographer was taking dictation from one of her employers and a man that she had rejected came in and shot her. The board of that state awarded that girl's family compensation. In order to prevent such things as this, this clause was inserted in the law. The term shall include all other injuries sustained while the employee is actually engaged in the furtherance of the business or affairs of the employer, whether on the employer's premises or elsewhere, and shall include all injuries caused by the condition of the premises or by the operation of the employer's business or affairs thereon, sustained by the employee, who, though not so engaged, is injured on the premises occupied by or under the control of the employer, or on which the employer's business or affairs are being carried on, the employee's presence thereon being required by the nature of his employment. Therefore it has been made perfectly clear by this act that it does not cover occupational disease or any illness or sickness incident to the prosecution of a man's work other than can be directly traced to the original injury received in the course of employment and within the state of Pennsylvania.

The first thing to do after coming in contact with an injury is to report that injury to the Bureau of Statistics and Information. Blanks for that purpose are provided by the insurance companies. They are not furnished this year, as heretofore, by the bureau. Where a company has been exempted from having to insure in an insurance company, they must furnish their own blanks for reporting accidents. These blanks contain a number of questions, the most important of which, for compensation purposes, relate to the social condition of the employee and the matter of wages, because, after all, the basis of compensation is the wages which the employee is receiving. If an employee is killed, then the social status of that man enters into it.

If a foreigner is killed, it is necessary to notify the consul. Whenever a consul hears of the death of a foreigner who is working in this country, he notifies us. We first look through our reports to see if the accident has been reported and, if not, we then notify the company. That is for the purpose of compensating dependents abroad, in case there are any. The widow and children are entitled to compensation. These blanks have been returned to us in far greater numbers this year than ever before. Probably we are receiving a greater number of reports for two reasons; everybody is supposed to report and again a great many cases are reported which are not reportable. But we are receiving a great many reports of accidents which are reportable accidents. Accidents reportable to the Bureau of Statistics are those which cause a disability of two or more days. We do not care for any reports in which the disability is less than two days. We need a report of the medical cost in all cases in order to get accurate figures. We figure that only two classes of people are interested in the payment of compensation and who know what it costs. In the one class is the company that has to pay for its policy and in the other are those who are exempted. We are going to ask all the insurance companies at the close of the year to furnish us with an exact statement, as near as possible, of the cost of compensation from a medical point of view. The experience has been in other states that the medical cost of compensation is about 60 per cent. of the total cost of the compensation for a year. The great majority of cases are those in which the disability requires compensation for only a week or two.

If any of you are in full control of the affairs of a corporation I would say this, where a case is reported and becomes compensable, the first step to take is to make an agreement with the injured employee. We do not require a receipt for every payment made to that employee, if the disability is of short duration. If you will send us one receipt for the total amount paid to that employee, that will save you trouble and will save our files from being filled up. In cases running over a long time (we have some cases now which run to 1930 and 1931, little children whose fathers have been killed) we will take a receipt every three months. The receipt should be for the total amount paid up to date. There is a great indisposition on the part of foreigners to sign any paper at all and employers are finding difficulty in coming to an agreement. However, in the majority of cases you will find it possible to get a receipt. We find it necessary to have this method in order to save the expense of filing. That is made necessary by the fact that the legislature gave us a very small appropriation for putting the Workmen's Compensation Act into effect. The whole appropriation is about $100,000 a year. That includes the salaries of the board and the other expenses in connection with the working of the act. We have only twenty-four clerks to carry out the act. New York has a much greater sum. They have from 250 to 300 clerks. We have not had a bit of trouble with our small force.

After a case becomes compensable and you fail to reach an agreement, the next step is to have the employee file a claim with the referee. While it is probable that a great many men may not see the wisdom of it, I have asked claim agents and employers to help their employees fill out claim petitions and file them with the referee, if they are not satisfied with the compensation offered them by the employer. Less than thirty petitions have been filed with the referees in the six weeks that the act has been in effect.

I am explaining the provisions of the law as they affect the medical profession; not to amend it or to apologize for it. The fact that this legislation was being considered by the last legislature was known to every citizen of the state. The employers did not overlook the fact and they saw to it that they were well represented not only before the commission that had been working on this law for several years, but also before the committees that considered the legislation primarily before it was reported out, and its terms were thoroughly discussed by them with each member of the legislature. Therefore the legislators had the advantage of the employer's viewpoint. The same observations are particularly true as to representatives of labor. If the medical men feel that the Pennsylvania act is somewhat restrictive on their profession it might be well for them to remember that probably they did not take the same care of their interests that the employer and the employee did, at a time when their advice would have been very welcome and most instructive. But we are in a period of experimentation and if the next twelve months' experience with this law proves that your profession has any real grievances the board will feel itself especially commissioned to present those facts to the next legislature for the purpose of correction. I may be pardoned, however, in the observation that the medical profession as a whole is just beginning to realize that the greatest corporations and the largest employers of labor in our state were on the ground with the "safety first" propaganda and installed means of first-aid to their injured employees and centralized their medical service and adopted some form of compensation for those injured, long before this act was even considered by our legislature. And now many of the members of the medical profession, busily engaged in their practice during the last few years, unmindful of the tendency in this respect on the part of the employers and the advances they have made in this particular, feel as though this preparedness on the part of the employers is due entirely to this act. This is not the case. This act is the product of modern thought. It was created neither by the legislators who voted it into law, nor by the original commission that was appointed to study the provisions of the laws of other countries. They were merely the instruments for assembling various wise provisions that were the product of the humanitarian tendency of the present day. The legislature merely indicted and placed on our statute books a form of compensation which was the verdict of society at large. The employers are always keen to scent public opinion. They are always alive to their own interests. They realized that care of and attention to the health and welfare of their employees was a great business asset and therefore our Workmen's Compensation Law really followed the great employers of our state and this explains the unanimity of approval with which it has been received by every element within our commonwealth.

Therefore those who framed the Pennsylvania act had reason to incorporate at least two provisions which seem to have been universally adopted throughout all the states, and must necessarily be considered as being established by the exercise of discretion on the part of those who have given this subject great study, namely:

1. The right of the employer to select medical attendants.

2. Having a waiting period of from ten to fifteen days during which time the employer furnishes medical attendance and becomes responsible for a certain amount as provided by the act, varying in different states, but during which period the employee receives no compensation. It is perfectly evident that this period of waiting is a very wise and necessary precaution as that is the testing period and insures the employer against the malingerer. The right of the employer to select the physician is fundamentally right. It may be criticized from the viewpoint of the medical profession alone as restrictive on the free choice of individual doctors. It may cause a few medical men to indulge in caustic criticism of the act. It may create in the medical profession, specialists who will be selected by employers and insurance companies to treat these cases; nevertheless, from the standpoint of the public, whose inter-

est is only to return quickly a productive element of society to activity, it will work out to the economic advantage of industry, for the reason that will readily occur to any one, that with the right to select physicians to attend the injured man during the waiting period of two weeks, the commercialism of the employer will dictate to him the thought of securing the best medical attendance so as to return that man to his employment before the expiration of the two weeks' period in order to avoid liability of compensation which begins on the fifteenth day after the accident.

I believe that an intelligent résumé of our law as to the doctor can be gathered by repeating a few questions that were addressed to us by a very prominent physician connected with hospital service in the state of Pennsylvania, and attaching the answers that were authorized by our board to be forwarded to this physician by our chief counsel. They are:

"*Question 1.* Does the amount allowed for the first fourteen days (namely $25, or in case of surgical operation $75), go to the hospital or to the attending physician or surgeon?

"*Answer 1.* The act allows no amount for the first fourteen days of service. It obliges the employer to give the services, but the employer is free to make what arrangement he pleases for the rendering of these services to his injured employee.

"Therefore, a hospital or physician who gives such services at the employee's request during the first fourteen days, would not have any right to recover the same against the employer. If the employer refuses on request to give the employee medical attention, the employee is free to employ his own physician and the employer is bound under the act to reimburse the employee for the sum spent by the employee for medical services. But, here again, the physician's claim would be against the employee. He has no status as a claimant under the terms of the Compensation Act, nor does the act provide any lien for these services on the amount recovered by the employee. Therefore, I should answer your first question by saying that this would depend entirely on the arrangement between the hospital and the employer, and on the arrangement between the hospital and its physician.

"*Question 2.* Are corporations liable for any hospital care, or is the injured employee individually liable?

"*Answer 2.* The liability of a corporation is the same as the liability of an individual employer. My answer to the second question is therefore the same as my answer to the first.

"*Question 3.* In case of an employee so seriously injured that he must remain in the hospital for more than two weeks, who is liable for payment of hospital bills, also who is liable for the bills for surgical attention?

"*Answer 3.* In such cases the employee would be liable unless the employer chooses to make an arrangement for a longer treatment than two weeks, at his, the employer's expense. In many cases, insurance companies and individual employers are glad to make such arrangement in order that by proper treatment an injured employee shall be speedily cured, so as to shorten his period of disability.

"*Question 4.* Is an injured employee permitted, to give an order on the employer to have hospital bills and surgeons' bills deducted from the amount due him under the Compensation Law?

"*Answer 4.* It is especially provided that such claims for payments due under this article shall not be assignable, and therefore, an order for the employer to have a hospital's share deducted from all compensation due, would in all probability be void.

"*Question 5.* If the employee is not permitted to give such an order and he or his friends cannot pay the hospital, how is the hospital to obtain payment of its bill? Must the hospital authorities swear out an order of relief and have the bill paid by overseers of the poor, or whoever handles the poor fund of the city, borough or county?

"*Answer 5.* The hospital must obtain payment of its bill from the employee exactly as it would from any other man whose financial position was uncertain.

"*Question 6.* How are the bills of the surgeon provided for? Must he obtain his pay from the employee, or from the employer?

"*Answer 6.* The bills of a surgeon are provided for exactly in the same way, no more nor less than the bills of the physician or the hospital. The surgeon must make his arrangement with the physician or hospital or the employer; otherwise, he must trust to recover the value of his services from the employee, as he would recover them before the act went into effect."

Therefore it is plain to the physician who is called on to attend a case whether or not it is one that will come within the terms of compensation and, when properly commissioned, whether or not he must abide by the terms of this act as to fees. In this particular, it might be well to bear in mind that the employee, having automatically accepted the terms of the compensation law by not rejecting it in the manner provided, has placed himself in a position where he has accepted its benefits in lieu of all other forms of action or claims for damages. This also applies to medical fees for the reason that the injured employee cannot depart from the terms of the act—employ a physician and undertake by any process of law or reasoning to place the burden of payment on the employer, for Section 303 of Article III provides: "Such agreement" (referring to the acceptance of compensation by express agreement or by silence) "shall constitute an acceptance of all the provisions of Article III of this act, and shall operate as a surrender by the parties thereto of their rights to any form or amount of compensation or damages for any injury or death occurring in the course of the employment, or to any method of determination thereof, other than as provided in Article III of this act. Such agreement shall bind the employer and his personal representatives, and the employee, his or her wife or husband, widow or widower, next of kin, and other dependents."

Physicians, as well as lawyers, forgetful of this section, have advanced the thought that inasmuch as our compensation law does not provide for the payment of compensation for disfigurement or loss of any part of the body that does not involve actual loss of wages or compensation, that undoubtedly the employee would retain his old common law action for damages for loss in these respects. As a matter of fact this is one of the most common arguments used by representatives of stock insurance companies against the state fund, whereby they undertake to draw the conclusion that their insurance is better than the state fund in that the latter only covers liability created by the act, whereas the stock company policy will cover any liability that may grow out of the loss of an ear, or a nose, or a finger, where actual loss of wages does not follow. Professor Bohlen, chief counsel for our board, very ably summed up the argument against this proposition, when he said: "The employee agrees to give up his common law rights to recover damages for any personal injury due to a work accident and all the harmful consequence which he suffers therefrom, and in return receives a right to the compensation provided in the act. He or his dependents obtain a certainty of a speedy and fixed compensation if he should be killed or disabled, in place of their previous right to full damage on the comparatively rarely occurring occasions when they could prove that the accident was due to his employer's negligence. In return, he gives up not only his right to full damages for those harms for which compensation is provided but also all right to any compensation or damages for those very infrequent consequences, such as mutilations and disfigurements, which do not entail loss of earning power and so are not the subject of compensation. It is therefore clear that the sole remedy of an employee who has agreed to accept the compensation provisions of Article III is under that article and that he can maintain no action at common law for any harm resulting from a work accident whether covered by the compensation schedules or not. There is therefore no right of action at law to recover damages for a mutilation or disfigurement not causing disability for more than fourteen days. An employee so mutilated is entitled only to the medical, surgical and hospital services which the employer is required by Section 306 (e) to supply him and if these are refused and he is forced to supply them for himself, his sole remedy is by petition to the Workmen's Compensation Board under Section 412 of the Compensation Act."

That section of the act which probably has excited the most interest and comment on the part of the medical profession is Section 306 (e) referred to in the above opinion which reads: "During the first fourteen days after disability begins the employer shall furnish reasonable surgical, medical and hospital services, medicines and supplies, as and when needed, unless the employee refuses to allow them to be furnished by the employer. The cost of such services, medicines and supplies shall not exceed $25, unless a major surgical operation shall be necessary; in which case the cost shall not exceed $75. If the employer shall, on application made to him, refuse to furnish such services, medicines, and supplies, the employee may procure the same, and shall receive from the employer the reasonable cost thereof within the above limitations. If the employee shall refuse reasonable surgical, medical and hospital services, medicines, and supplies, tendered to him by his employer, he shall forfeit all right to compensation for an injury or any increase in his incapacity shown to have resulted from such refusal."

In connection with the reports we are now receiving more than a thousand accident reports a day. We have received so far this month eighty-four reports of fatal accidents and they do not include the reports of thirty-two accidents which have not yet reached us. It certainly indicates that whatever precautions have been taken for safety, there is great necessity for redoubling the efforts along this line. I have not the slightest doubt but that if we required reports for cases where the men are slightly injured, at least 300,000 reports would be received by the bureau before the end of this year. We will have approximately 125,000 reports of fairly serious accidents for this year. The figures may run even higher than that. I had occasion to investigate the conditions surrounding the Garretson Hospital in Philadelphia, located in the heart of the Baldwin Locomotive Works and found that in this one hospital to which the Baldwin Locomotive Works send most of their accident cases, there were 12,000 men from this one plant treated in one year. We also found that the Baldwin Locomotive Works employed 12,000 men which showed that every man in the Baldwin Works was injured at sometimes during the year.

Now I am sure that you will all find it more interesting to talk to me than to have me talk to you.

Dr. F. S. Arndt, Pennsylvania Coal Company and Temple Coal Company, Scranton: We had this question up this forenoon. It is in regard to the refusal of an employee to accept the attention of the company's surgeon. Do they obtain any compensation if they refuse the services of the company's surgeon?

Mr. Furman: An employee who refuses the services tendered him by the employer forfeits the right to compensation until he agrees to accept the services. He may recover the compensation if he will take the service of the company's physician.

Dr. Arndt: If he refuses to accept the company's surgeon, of course, the company then would not make a second tender of surgical attendance. If he should ask for it afterwards, would we be obliged to give it to him?

Mr. Furman: Yes. There is no reason why you should not tender him the second offer. Some of the insurance companies, as well as some of the companies who carry their own insurance, hire interpreters to explain to the foreigners what they are giving up if they do not accept the services tendered to the employee.

Dr. Arndt: Considerable trouble would be created if an outside doctor should be attending a case and our doctor would step in. Suppose our man goes to take care of a case after another doctor has dressed a wound twice. The other doctor would be offended by it. Now if we tender our services after another doctor has taken the case, it will create a great deal of trouble.

Mr. Furman: Nevertheless, the the employer is responsible for compensation to this man. He certainly is anxious to see this man restored to health. While the attending physician may object, he is taking a chance, as the man is receiving no compensation at all. I should think that the situation could be properly explained to that physician or possibly an arrangement could be made in some of those cases that the company might say, "Our physician has examined this man and he is perfectly satisfied. We will accept this man's family physician or the physician in attendance." In very many cases the company's physician may be objectionable to the patient and he would rather have his own physician. A man may be injured and the company's physician may have attended that man's wife and, she having died, the man may conceive a dislike for that physician. In such a case he would prefer another physician to attend him.

Dr. J. B. Rogers, Philadelphia and Reading Coal and Iron Company, Pottsville: In the case of a man being injured and refusing treatment by the physician of his employer, and in the time between the injury and his accepting the services of the company's physician, certain conditions arise in connection with his injury which are caused by the fact that he has been improperly treated or not treated at all, is the employer liable for the increase in disability?

Mr. Furman: The employer is not responsible for the increase in disability which would result from the employee refusing the medical attendance tendered.

Dr. Rogers: In a case in which it is alleged that a man died from injuries received while working for the company and the widow refuses to allow the company to hold a postmortem, what are we to do?

Mr. Furman: There is nothing in the law which compels a postmortem examination. The only thing for you to do is to refuse to pay compensation and then the case would go to the board. Undoubtedly the board would order a postmortem examination in order to determine the exact cause of the man's death. There is nothing in the law which permits the physician to hold a postmortem. After the petition is filed, the employer is entitled to seven days in which to make his answer, seven days more elapses before a hearing.

Dr. Rogers: The law as I understand it, would cover any act that the employee may be engaged in that is in the line of his business. Now, up in our county they do not allow the miners to take more than a certain number of pounds of powder into the mines, so they keep it around their homes. It is necessary for them to fill a can with the powder to take it into the mine. Quite recently an employee of ours said that when filling this can some of the powder exploded and burned him very badly and we would like to know whether he was engaged in the line of his employer's business at that time.

Mr. Furman: I should say that that is a specific case and one for the board to decide. The way to bring it before the board is to refuse to pay compensation and that will automatically bring it before the board. You can then get a quick and speedy decision. There are a great many of those cases. You can not tell, though, what the ruling will be, but the chances are that that man would be entitled to compensation.

Dr. Rogers: The men are working by the ton. They have no definite hours. They come in when they choose and go out when they choose. If it were proven that this man was employed in the line of his duty and that he had no other time of day but must do this at his leisure, it would seem to me, the way the law reads, that that man's family would come under the law.

Mr. Furman: We have been struggling with this question of miners for the last week. As to the case which you cite, I have very serious doubts about it. If the man was given specific directions to go and do this thing, that would be an entirely different case. We have a case here in Harrisburg, one of the first which was brought. A man was working in a grocery store and stopped work at 8 o'clock. He then went many blocks out of his way to deliver some groceries, and was struck by an automobile and killed. The question is now, whether he was on his employer's business or not. It is a case for very serious consideration.

Dr. Rogers: The point which, I think, would make them liable is that the men are working by the ton and not working by the day and if at any time they do anything pertaining to their line of business that is then actually necessary in the pursuit of their work.

Mr. Furman: That is a very interesting point. That is one business of the state over which there is not regulation of the employees. They do just about as they please.

Dr. George O. Evans, Oliver Iron and Steel Company, Pittsburgh: Suppose a miner working injures himself slightly and makes no report of it. Possibly five or six days later infection sets in and puts him out of business, would the compensation begin from the time of the injury or from the time he reported the injury?

Mr. Furman: Compensation would begin two weeks from the time disability commences, not necessarily from the time of the injury.

Dr. Randall Zimmerman, Westinghouse Air Brake Company, Wilmerding: If an employee should seek the services of another physician, would that constitute a refusal of the services of the company's physician? How can the company give the man medical service if he never reports his injury?

Mr. Furman: The employer is not responsible for an injury if it is not reported to him. The employee must ask the company for medical services. It is then the employer's duty to tender the medical services. Sometimes it is a little hard to understand just what the law means. Section 311 of Article III, says: "Unless the employer shall have actual knowledge of the occurrence of the injury, or unless the employee or some one in his behalf, or some of the dependents or some one in their behalf, shall give notice thereof to the employer within fourteen days after the accident, no compensation shall be due until such notice be given or knowledge obtained; but if the employee or other beneficiary shall show that his delay in giving notice was due to his mistake or ignorance of fact or of law, or to his physical or mental inability, or to fraud, misrepresentation or deceit, or to any other reasonable cause or excuse, then compensation shall be allowed, unless the employer shall show that he did not know, and by reasonable diligence could not have learned, of the accident, and that he was prejudiced by the delay; in which case he shall be relieved to the extent of such prejudice."

Dr. C. P. Henry, Carpenter Steel Company, Reading: When does a man's work commence and when does it end? Is the company responsible from the time he leaves his house?

Mr. Furman: Ordinarily a man's work begins when he enters on his employer's premises. There is a case in Erie in which a man worked in a grocery store and he stopped, on his way to work in the morning, in three different hotels to take orders. It took him out of his usual way, and he was injured. He is claiming compensation and the question arises whether he is on his employer's business from the time he leaves home or from the time he leaves the first hotel. I think he is only on his employer's business when he enters on the employer's premises or until he leaves them.

Dr. Henry: Suppose you have a case in which the patient is in the hospital and has been there sixteen days before being operated on. Who is responsible for the payment of the costs?

Mr. Furman: The responsibility under a strict reading of the law rests with the employer. It is to the employer's interest to get that man well. The longer he is sick, the more the compensation. If by paying a seventy-five or a hundred dollar medical bill, the employer may be able to save possibly $500 or $1,000 of compensation, he is going to be business man enough to pay for the medical services.

Dr. Zimmerman: Has there been a ruling in Pennsylvania to the effect that an employee does not have to submit himself to an operation for hernia?

Mr. Furman: Nothing of that sort has been done.

Dr. Zimmerman: Do the insurance companies pay the whole expense of the doctor's fee or does the employer pay some of these fees out of his own pocket? How about the state fund?

Mr. Furman: I know this, that the attitude and policy of the state fund is going to be one of strict fairness both to the employer and to the employee and you can get just as much from this fund as you could from any one else. The state fund and the insurance companies are both responsible for the fees up to the amount set forth in the Act with regard to the expenses of the doctor or the surgeon. The state insurance fund may do the very things that an insurance company can do. If they can spend a hundred dollars to save five hundred dollars, they have the right to do so.

If, for instance, a man had an injury in which an operation would prevent dismemberment, they would be justified in going to the expense of that operation, say for seventy-five dollars, to save the expense of dismemberment, which might run into thousands of dollars and even more. They undoubtedly will take that view of it.

Dr. W. A. Prideaux, Commercial Coal Mining Company, Expedit: In the case of lumbago, you will agree that this is a question worth discussing. We have many cases where employees claim that they have sustained an injury when it appears to us that it is only a case of lumbago. How shall we decide what is an injury and what is lumbago?

Mr. Furman: If you are not disposed to pay the compensation, advise your men to file a claim petition. The rulings in these cases will have to be made by the board.

Dr. Prideaux: If these pains occur while a man is loading a car, causing his disability, would he come under the compensation act?

Dr. Patterson: Have a case filed before the board and get a ruling of the board.

Dr. L. A. Shoudy, Bethlehem Steel Company, South Bethlehem: What are we to do in the case of a man who has been in the employ of the company for two days and claims that he was injured by a blow on the hip? He goes home without reporting it to the foreman and two days later, he employs his own physician, four days later he is operated on and then claims compensation.

Mr. Furman: If he notifies the company that he is in the hospital and needs their medical service, they should give him the same.

Dr. Shoudy: He does not ask for services.

Mr. Furman: He is not entitled to compensation until he accepts the medical services of the company. You are not responsible for any increase in his disability.

Dr. Shoudy: Do men who are overcome by gas come under the compensation law? Are they considered as accident cases?

Mr. Furman: The first case that came up to me was a case reported by Dr. Patterson. Did you pay him compensation?

Dr. Patterson: They did not pay him any compensation. I am convinced that the Compensation Board is going to rule that a man who is gassed is in the same class as a case of lead poisoning. In the future, the first gas case that does come up is going to be a contested case. This will also be true in the case of lumbago and hernia.

Dr. Shoudy: We had a man who had been in the employ of our company for eight days. He was injured but did not report the same until the eighth day, when he came to one of our physicians with an infection of his eye. At the time we saw him he had two marked ulcers of the cornea, caused by some foreign body. We should like to know if a case of this kind is compensable.

Dr. Patterson: The law says he shall be compensated for any violence to the physical structure of the body.

Dr. C. A. Lauffer, Westinghouse Electric and Manufacturing Company, East Pittsburgh: If an injury that is compensable must be violence to the structure of the body, how can you include hernia under this law, since hernia is generally due to anatomical defects?

Mr. Furman: The board has not as yet ruled what constitutes hernia. I think that the ruling will be that the evidence must show that there is physical violence to the body.

Dr. Patterson: The first case of hernia that occurs will be contested.

Mr. Furman: They have that matter up for consideration. The board will not give a specific ruling on any case until they are furnished with the facts surrounding that case.

Dr. J. B. Hileman, Pennsylvania Railroad Company, Harrisburg: In case a man first refuses the company's medical services and then decides later to accept them, does the fourteen-day period begin from the time at which he accepts the services of the company's doctor?

Mr. Furman: I think the time would begin from the time he was actually injured, unless somebody raises the point and compels a ruling from the board on the matter. Lots of these things have to be decided for specific cases. The board has made no ruling on that point as yet. The present ruling is that the first day of injury is the day on which the accident occurs irrespective of the hour at which it occurs.

Dr. Evans: Is there any partial payment to be made for compensation? Suppose a man is injured and he is able to do light work but not able to do the full amount of his work. If he can go back to work at all, will he be paid a partial amount?

Mr. Furman: That is provided for in the Act. We have some cases now in which men are being paid for partial disability.

Mr. A. P. Wetherill: What should be done in the case of partial and total disability from industrial disease?

Mr. Furman: The Act does not specify industrial disease as compensable. In such cases, the injured person would have to resort to common law, under the new common law, where the defenses are removed.

Mr. Wetherill: What will be done in case a man should get wrist drop from lead poisoning?

Mr. Furman: That is an occupational disease. That is a condition that does not come under the law.

Dr. Patterson: There is no provision in the Compensation Act for compensation for industrial diseases. I am convinced that we are going to see legislation for occupational diseases. In the meantime, the only thing to do is to prevent these fellows from getting wrist drop.

Dr. William Scull: A man getting lead poisoning is not entitled to compensation under the Compensation Act?

Mr. Furman: No. He has the right, though, to sue under the common law. What he can collect by that method, he is entitled to.

Mr. Wetherill: Has he not given up the right of the common law?

Dr. Patterson: If one of your employees is injured while in your employ, he is entitled to compensation under the Compensation Act, but if he contracts lead poisoning in your plant, he has the right to sue you under the common law for damages, as he can not demand compensation under the Compensation Act.

Mr. Wetherill: This makes it rather a complicated thing for the employer who has two cases on his hands, one which could be caused by accident and the other by industrial disease. Could we be protected from industrial disease by the state fund? If we can not, and would want to insure in the state fund to protect our compensation, we would have to carry two insurances. That is rather unfortunate.

Mr. Furman: The state insurance fund is limited in the scope of its ability to write insurance.

Mr. Wetherill: You can see that a company can not very well go to an insurance company for its protection from industrial disease and to the state fund for accidents. Of course, they could do it, but it would not be fair to the insurance company. A company should either give the insurance company the whole thing or nothing.

Mr. Furman: The insurance companies are not connected with the state insurance fund. It is in existence as an aid to the employer.

Dr. Zimmerman: Do we understand that the employer's common-law rights are removed in regard to industrial diseases?

MR. FURMAN: I understand that the present common law is under the new common law. I may be wrong in that. I shall read Article II, Section 201: "That in any action brought to recover damages for personal injury to an employee in the course of his employment, or for death resulting from such injury, it shall not be a defense—(*a*) That the injury was caused in whole or in part by the negligence of a fellow employee; or (*b*) That the employee had assumed the risk of the injury; or (*c*) That the injury was caused in any degree by the negligence of such employee, unless it be established that the injury was caused by such employee's intoxication or by his reckless indifference to danger. The burden of proving such intoxication or reckless indifference to danger shall be on the defendant, and the question shall be one of fact to be determined by the jury."

DR. PATTERSON: The thought occurs to me that if lead poisoning is violence to the physical structure of the body, the employee can come under the Compensation Act. If on the other hand, it is not violence to the physical structure of the body and does not come under the Compensation Act, it certainly seems to me that the employer has the right of the three good old tried defenses. I may be right and I may be wrong.

MR. FURMAN: That question has never been brought before the Compensation Board.

DR. SHOUDY: How about electrocution?

MR. FURMAN: That is violence to the physical structure of the body.

DR. SHOUDY: Some of the gas cases are the same.

DR. H. T. HORN, Atlas Cement Company, Coplay: In the cement industry we have a number of cases of suffocation from cement slides. Last year we had four. Do they come under the compensation law?

MR. FURMAN: The Compensation Board will have to decide these questions.

CHAIRMAN: I know we are all indebted to Mr. Furman for his courtesy in coming here this afternoon and giving us the benefit of his knowledge of the Compensation Act.

We are going to have another meeting of this kind, to which I hope all of you physicians will come, here in Harrisburg to discuss these problems.

I have three topics which I suggest for the next meeting: The Value of Physical Examination as a Factor in the Prevention of Industrial Injury; The Effect of Extreme Heat as a Factor in Impairing the Efficiency of the Working Man; Dust and Fumes the Foe to Industrial Life. Are there any other topics which you men want to take up at our next meeting? I have only suggested these topics which I believe will be of general interest. If you can think of any other topics or if you think of them after you get home and will let me know about them, I will certainly give them my careful consideration and attention. I want to make these meetings of such interest to you that you will look forward to coming here and getting your problems solved. Can you think of any other topics.

DR. HILEMAN: I would suggest the subject of Hernia and Sprained Back.

CHAIRMAN: I hope at the next meeting to set apart sufficient time to show you the last word in safety-first films. We hope to be able to show you what other men are doing in the way of accident prevention.

I wish to express on behalf of the Department of Labor and Industry the very deep appreciation which we here in Harrisburg feel for the time which you men have spent and the trouble you have taken in coming here to help us in our effort to be of service to you. We want to give the best service we can to every man in the industries, so that he may do the best business in the world, that he will stop industrial diseases and that he will cut out the industrial accidents, because there is no better business in the world than stopping industrial diseases and preventing industrial accidents.

You will not only know that your work has been well done and that you are your brother's keeper, but you will also have the further knowledge that every accident case that is prevented means that the workmen in your care are able to do more efficient and better work and produce a better product.

Meeting adjourned at 4 p. m.

PROCEEDINGS OF SECOND CONFERENCE OF PHYSICIANS

UNDER AUSPICES OF PENNSYLVANIA DEPARTMENT OF LABOR AND INDUSTRY, MAY 18, 1916

HALL OF HOUSE OF REPRESENTATIVES,
STATE CAPITOL, HARRISBURG

MORNING SESSION

Chairman: Dr. Francis D. Patterson, Chief, Division of Hygiene and Engineering, Department of Labor and Industry, Harrisburg, Pa. The following persons were present:

Dr. Jesse E. Ambler, Ford City, Pittsburgh Plate Glass Co., Pittsburgh.

Dr. C. S. Apgar, 7508 Hamilton Avenue, Pittsburgh, Armstrong Cork Co.

John Bailey, Ridley Park, The Bell Telephone Co., Philadelphia.

Dr. J. M. Baldy, 2219 DeLancey St., Philadelphia, Bureau of Medical Education and Licensure.

Dr. J. Walter Barr, Nanty Glo, Pennsylvania Coal and Coke Co., Patton; Lincoln Coal Co., Nanty Glo.

Dr. C. A. Barron, Wissinoming, Philadelphia, Quaker City Rubber Co.

Dr. John H. Bennett, York, Department Public Safety.

Dr. William Thomas Bishop, 211 Pine St., Harrisburg; Dauphin Co. Med. Society.

Dr. Walter H. Blakeslee, 3328 North Seventeenth Street, Philadelphia, Department of Labor and Industry, Harrisburg.

Dr. James M. Booher, 6743 Evans Avenue, Chicago, Ill., Life Saving Devices Co.

Dr. Russell Sage Boles, 2201 Chestnut Street, Philadelphia.

Dr. T. John Bowes, Ridley Park; Philadelphia Electric Co., Philadelphia.

Dr. Harold S. Bromall, 7201 Cresheim Road, Philadelphia; Surpass Leather Co.

Dr. Stillwell C. Burns, 1326 Spring Garden St., Philadelphia; Baldwin Locomotive Works.

Dr. J. Treichler Butz, 304 North Ninth Street, Allentown.

Dr. J. A. Carnes, Massillon, O.; Central Steel Co.

Dr. R. W. Chaffee, 1626 West Genesee Street, Syracuse, N. Y.; The Solvay Process Co.

Dr. Dorothy Child, 5023 McKean Avenue, Gtn., Philadelphia; Student, Public Health.

Dr. J. L. Christian, Lopez; Connell Anthracite Mining Co., Scranton.

Dr. G. M. Coates, 1736 Pine Street, Philadelphia; Wetherill and Brother.

Dr. Joseph Cohen, Berwick; American Car and Foundry Co.

Dr. A. W. Colcord, Clairton; Carnegie Steel Co.

Dr. John C. Cope, Tribune Building, Greensburg; H. C. Frick Coke Co., Pittsburgh.

W. Collins, 1543 Arch Street, Norristown; Alan Wood Iron and Steel Co., Philadelphia.

W. M. Condron, Harrisburg Hospital, Harrisburg.

Frederick S. Crum, Ph.D., Newark, N. J.; Prudential Insurance Company of America.

Dr. John F. Culp, 410 N. Third Street, Harrisburg.

Dr. William Cummins, 5736 Green Street, Gtn., Philadelphia; Midvale Steel Co.

Dr. E. A. Curry, Danville; Montour County Medical Society.

Dr. Gilbert L. Dailey, 713 North Third Street, Harrisburg; Harrisburg Pipe and Pipe Bending Co.

Dr. George C. Davis, 35 Arch Street, Milton; American Car and Foundry Co., St. Louis, Mo.

Dr. Park A. Deckard, 709 North Third Street, Harrisburg.

Dr. J. C. DeVenney, 1115 North Second Street, Harrisburg.

Dr. G. M. Dickson, Adamsburg; United Coal Co., Pittsburgh.

Dr. James E. Dickinson, 228 N. Second Street, Harrisburg.

Dr. G. E. Dietrick, Bank Building, Coatesville; Worth Brothers Co.

James B. Douglas, 1401 Arch Street, Philadelphia; The United Gas Improvement Co.

Dr. William Tyler Douglass, 1634 Derry Street, Harrisburg; The Polyclinic Hospital.

Dr. Charles Duffy, Forbes Building, Pittsburgh; Jones and Laughlin Co.

J. McF. Eaton, Detroit, Mich.; Manager, Welfare Dept., Cadillac Motor Car Co.

Dr. C. W. Eisenhower, 211 South George Street, York.

Dr. J. W. Ellenberger, 922 North Third Street, Harrisburg; J. Horace McFarland Co. and Harrisburg Shoe Co.

Dr. George O. Evans, Uniontown; Oliver and Snyder Steel Co., Pittsburgh.

Dr. W. D. Farber, Northampton; Lawrence Portland Cement Co.

Dr. F. U. Ferguson, Gallitzin; Tunnell Coaling Co., Gallitzin; Pennsylvania Coal and Coke Corporation, Patton.

Dr. Judson C. Fisher, 330 West Ninety-Fifth Street, New York City; Globe Indemnity Co.

Dr. Joseph Fleitas, Nicetown, Philadelphia; Link-Belt Co.

Dr. J. Clinton Foltz, Philadelphia; American Pulley Co.

S. N. Fowler, 1107 Times Building, New York City; Life Saving Devices Co., Chicago, Ill.

Dr. David S. Funk, 300 North Second Street, Harrisburg.

Dr. A. T. Gaillard, 1703 Finance Building, Philadelphia; Travelers Ins. Co., Hartford, Conn.

Dr. James W. Geist, 527 South Franklin Street, Wilkes-Barre; Lehigh and Wilkes-Barre Coal Co.

A. C. Gibson, R. F. D. No. 1, Allison Park; Spang-Chalfant and Co., Pittsburgh.

Dr. E. A. Graves, Coatesville; Coatesville Boiler Works.

Dr. H. F. Gross, 1412 North Second Street, Harrisburg; Harrisburg Polyclinic Hospital.

Dr. H. L. Grazier, Woodlawn; Jones and Laughlin Co., Pittsburgh.

Dr. F. L. Grossman, 700 Main Street, Hartford, Conn.; Travelers Ins. Co.

Dr. Edward N. Hagin, Sharon; Sharon Steel Hoop Co.

Dr. G. H. Halberstadt, Pottsville; P. & R. Coal and Iron Co.

Dr. E. H. Hanna, 49 Englewood Avenue, Detroit, Mich.; Cadillac Motor Car Co.

Dr. C. H. Harbaugh, 1143 South Broad Street, Philadelphia; Aetna Life Ins. Co., Hartford, Conn.

Dr. G. G. Harman, 523 Penn Street, Huntingdon.

Dr. W. H. Hartzell, 22 North Eighth Street, Allentown; Lehigh Valley Transit Co.

Dr. S. E. Hayes, Byrnedale; Shawmut-Mining Co., St. Marys.

Dr. G. L. Hays, 816 Empire Building, Pittsburgh; National Tube Co.

Dr. Charles P. Henry, 846 Center Avenue, Reading; Carpenter Steel Co.

Dr. David J. Hetrick, 54 North Thirteenth Street, Harrisburg.

Dr. William S. Higbee, 1703 South Broad Street, Philadelphia; Pennsylvania Salt Mfg. Co

Dr. J. B. Hileman, 413 Market Street, Harrisburg; Pennsylvania R. R. Co.

Dr. W. M. Holtz, 435 Sixth Avenue, Pittsburgh; Pittsburgh Rwys. Co.

Dr. H. P. Horigan, 735 Seneca Street, Buffalo, N. Y.; Larkin Co.

Dr. E. H. Ingram, 1503 North Twenty-Second Street, Philadelphia; Wm. Cramp and Sons.

Dr. Alfred P. Isenberg, 413 Market Street, Harrisburg; Pennsylvania R. R. Co.

Dr. Thomas W. Jackson, 412 South Thirteenth Street, Philadelphia; H. K. Mulford Co.

M. Fridolf Jacobson, 50 State Street, Boston, Mass.; American Mutual Liability Ins. Co.

Dr. W. T. James, 1900 North Sixth Street, Harrisburg.

Dr. B. B. Jeffers, 36 North Front Street, Steelton.

Dr. S. H. Johnson, 4025 Butler Street, Pittsburgh; Heppenstall Forge and Knife Co.

Dr. C. L. Johnstonbaugh, Bethlehem; Bureau of Medical Education and Licensure.

Dr. J. P. Jones, 612 Jefferson Avenue, Niagara Falls, N. Y.; Union Carbide Co.

Dr. E. W. Keith, Minersville; P. and R. Coal and Iron Co., Pottsville.

Dr. W. O. Keffer, Frugality; Eastern Bituminous Coal and Coke Co.

Dr. Frank D. Kilgore, 2011 North Sixth Street, Harrisburg.

Dr. H. S. Kinne, Williamsport; J. K. Mosser Co.

Dr. S. V. King, 918 Westinghouse Bldg., Pittsburgh; American Bridge Co.

Dr. C. F. Kirkendall, 260 Clinton Avenue, Brooklyn; H. K. Mulford Co., New York.

Dr. H. E. Klase, 1706 Market Street, Harrisburg; P. and R. Railroad Co.

Dr. Adolph Koenig, Edgewood, Pittsburgh; Bureau of Medical Education and Licensure.

Dr. Joseph A. Lafferty, 201 Trust Co. Building, McKees Rocks; Ft. Pitt Malleable Iron Co., Pittsburgh.

Dr. D. H. Lake, 137 Maple Avenue, Kingston; Kingston Coal Co.

Dr. Charles A. Lauffer, 521 Franklin Avenue, Wilkinsburg; Westinghouse Electric and Mfg. Co., East Pittsburgh.

Dr. J. B. Lowman, 116 Market Street, Johnstown; Cambria Steel Co.

Dr. William A. Lucas, 502 North Grove Avenue, Oak Park, Ill.; Western Electric Co., Chicago, Ill.

Dr. John W. Luther, Palmerton; New Jersey Zinc Co., New York.

Dr. J. B. McAlister, 234 North Third Street, Harrisburg; American Academy of Medicine.

Dr. Frank V. McConkey, 237 South Pine Street, York.

Dr. Sidney McCurdy, Youngstown, O.; Youngstown Sheet and Tube Co.

Dr. H. E. McGuire, Pittsburgh Life Building, Pittsburgh; Jones and Laughlin Co.

Dr. T. J. McGurl, Minersville; Pine Hill Coal Co.

Dr. Edwin H. McIlvain, 3801 North Seventeenth Street, Philadelphia; Edwin G. Budd Mfg. Co.

Dr. H. McGowan, 236 State Street, Harrisburg.

Dr. Joseph McIver, U. G. I. Building, Philadelphia; The United Gas Improvement Co.

Dr. William P. MacLeod, 101 West Fifty-Eighth Street, New York City; New York Central R. R. Co.

Dr. D. P. Maddux, 801 Madison Street, Chester; Bureau of Medical Education and Licensure.

Dr. Alfred C. Marshall, 610 South Twenty-Second Street, Philadelphia; Powers, Weightman, Rosengarten Co.

Dr. J. M. Maurer, 319 E. Sunbury St., Shamokin; Susquehanna Coal Co., Wilkes-Barre.

Dr. T. Grier Miller, 1805 Pine Street, Philadelphia; U. of P. Occupational and Industrial Clinic.

Dr. S. P. Mengel, 181 South Franklin Street, Wilkes-Barre; Lehigh Valley Coal Co.

Dr. George A. Merkel, 465 Sunbury St., Minersville; Susquehanna Coal Co.

Dr. Irwin D. Metzger, 238 North Craig Street, Pittsburgh; Bureau of Medical Education and Licensure.

Dr. William T. Merrill, 140 Sheffield Avenue, New Haven, Conn.; Winchester Repeating Arms Co.

A. J. Mevny, Fort Pitt Hotel, Pittsburgh; Draeger Oxygen Apparatus Co.

Dr. John D. Milligan, 345 Fourth Avenue, Pittsburgh; Pittsburgh and Lake Erie R. R. Co..

Dr. William C. Minnich, 756 Chartiers Avenue, McKees Rocks; Pressed Steel Car Co., Pittsburgh.

Dr. Harry E. Mock, 122 Michigan Avenue, Chicago, Ill.; Sears, Roebuck & Co.

Dr. George D. Morton, Honey Brook; Pennsylvania R. R. Co., Philadelphia.

Dr. Casper Morris, 2050 Locust St., Philadelphia; P. and R. Rwy. Co.

Dr. John J. Mullowney, Box 45, Paxtang; State Department of Health, Harrisburg.

J. L. Murrie, Room 1431, 124 East Fifteenth Street, New York City; The N. Y. Edison Co.

Dr. Ralph W. Nauss, Greenville, O.; Student, U. of P., Philadelphia.

Dr. F. A. Newcomb, 5512 Hunter Avenue, Philadelphia; J. T. Lewis and Brothers Company.

Dr. John S. Niles, 74 North Main Street, Carbondale; D. and H. R. R.

Major Robert U. Patterson, 2326 Nineteenth Street, N.W., Washington, D. C.; American National Red Cross.

F. S. Peterkin, 1133 Ross Avenue, Wilkinsburg; Westinghouse Electric and Mfg. Co., East Pittsburgh.

Dr. C. R. Phillips, 1646 N. Third St., Harrisburg; American Academy of Medicine.

Dr. Charles H. Pike, 3403 Grays Ferry Road, Philadelphia; Harrison Brothers and Co., Inc.

Dr. Charles S. Rebuck, 412 North Third Street, Harrisburg; Pennsylvania R. R.

Dr. Frank F. D. Reckord, 922 North Third Street, Harrisburg; State Department of Health.

Dr. Sidney J. Repplier, 4521 Chester Avenue, Philadelphia; Curtis Pub. Co.

Dr. A. Z. Ritzman, 812 North Sixth Street, Harrisburg.

Dr. George Robinson, 500 Forest Avenue, Ambler; Keasbey and Mattison.

Dr. J. B. Rogers, Pottsville; The Eastern Steel Co.

Dr. C. T. Graham-Rogers, New York City; N. Y. Department of Labor, Division of Industrial Hygiene.

Dr. W. S. Russell, Steelton.

Dr. Frank G. Scammel, 40 S. Clinton Avenue, Trenton, N. J.; Essex Rubber Co.

Dr. Karl Schaffle, New Cumberland.

Dr. J. W. Schereschewsky, Marine Hospital, Pittsburgh; U. S. Public Health Service.

Dr. Jacob Schoening, 1908 North Park Avenue, Philadelphia; John B. Stetson Co.

Dr. William Schroeder, 513 Eleventh Street, Brooklyn; Employers' Mutual Ins. Co., New York.

Dr. William B. Scull, 3024 Richmond Street, Philadelphia; John T. Lewis and Brother Co.

Dr. L. H. Seaton, Grays Landing; Consolidated Coke Co., Pittsburgh.

Mrs. Samuel Semple, Titusville; Industrial Board, Dept. of Labor and Industry, Harrisburg.

Dr. Herman F. Senftner, 428 West One Hundred Fifty-Fourth Street, New York City; Student, U. of P., Philadelphia.

Dr. H. A. Shaffer, Williamstown.

Dr. Loyal A. Shoudy, 8 South New Street, South Bethlehem; Bethlehem Steel Co.

Dr. L. G. Shrom, Penn Avenue, Pittsburgh; Joseph Horne Co.

Dr. L. M. Shumaker, 2102 North Sixth Street, Harrisburg.

Dr. C. Shultz, Danville; Montour County Medical Society.

Dr. John J. Singer, 204 Tribune Building, Greensburg; Keystone Coal and Coke Co.

Dr. D. E. Sloan, Charleroi; Pittsburgh Steel Products Co., Monessen.

Dr. C. H. Smith, Linglestown.

Dr. Harvey F. Smith, 130 State Street, Harrisburg.

Dr. Henry F. Smyth, 217 Walnut Avenue, Wayne; Laboratory of Hygiene, U. of P., Philadelphia.

Dr. C. C. Stauffer, 1926 Green Street, Harrisburg.

Dr. Fannie R. Stees, 317 North Second Street, Harrisburg.

Dr. Alfred Stengel, 1728 Spruce Street, Philadelphia; Department of Labor and Industry, Harrisburg.

Dr. C. L. Stevens, Athens; Pennsylvania Medical Journal.

Dr. G. M. Stites, Williamstown; Susquehanna Coal Co.. Wilkes-Barre.
Dr. George A. Stock, 101 Bloom Street, Danville.
Dr. E. L. Straub, Minersville; Pine Hill Coal Co.
Dr. George K. Strode, Harrisburg; State Department of Health.
Dr. C. M. Sturtevant, 4321 Frankford Avenue, Philadelphia; Dill and Collins Paper Mill.
Dr. C. M. Sullivan, 1439 Market Street, Harrisburg.
Dr. R. V. Swanton, 301 South Atlantic Avenue, Pittsburgh; American Steel and Wire Co.
Dr. Jackson Taylor, Coatesville; Lukens Iron and Steel Co.
Dr. A. R. Tilton, 240 West Forty-Ninth Street, New York City; Travelers Ins. Co., Hartford, Conn.
Dr. D. B. Traver, Steelton.
Dr. Marion Ulrich, Millersburg.
D. Van Derwert, Schenectady, N. Y.; General Electric Co.
Dr. J. P. Van Keuren, Twenty-First and Providence Avenue, Chester; Robert Wetherill and Co., Inc.
Dr. E. L. Walmer, 112 North Thirteenth Street, Harrisburg.
Dr. J. M. Wainwright, 516 Spruce Street, Scranton; D. L. and W. Rwy.
Dr. H. B. Walter, 1317 North Third Street, Harrisburg.
A. P. Wetherill, 126 South Thirtieth Street, Philadelphia; Wetherill and Brother.
Dr. E. R. Whipple, 187 South Second Street, Steelton; Pennsylvania Steel Co.
Dr. William S. White, 22 East Washington Street, Chicago; Marshall Field and Co.
Dr. W. T. Williams, Mt. Carmel; Lehigh Valley Coal Co., Wilkes-Barre.
Dr. John Woodman, 56 West Fifty-Sixth Street, New York City; The N. Y. Edison Co.
Dr. J. H. Young, Lansford; Lehigh Coal and Navigation Co.
Dr. G. A. Zimmerman, 1407 Market Street, Harrisburg.
Dr. J. L. Zimmerman, Hershey; Hershey Chocolate Co.
Dr. Randall Zimmerman, 222 Westinghouse Avenue, Wilmerding; Westinghouse Air Brake Co.
John Price Jackson, Commissioner of Labor and Industry, Harrisburg.
Dr. Francis D. Patterson, Chief, Division of Hygiene and Engineering, Department of Labor and Industry, Harrisburg.
Dr. Elizabeth B. Bricker, Department of Labor and Industry, Harrisburg.
John S. Spicer, Department of Labor and Industry, Harrisburg.
J. Herman Knisely, Department of Labor and Industry, Harrisburg.

The meeting was called to order by the chairman at 10 a. m.

Chairman: This is our second conference of physicians to take up in heart-to-heart discussions questions of Industrial Hygiene for the purpose of solving many of the problems which confront us in our daily work. I am sure that you gentlemen will be interested to know the demands in the state of Pennsylvania on the physicians in industry, as those who are unfamiliar with the figures will be surprised when I tell you that up to 6 o'clock last evening we had 93,528 industrial accidents in this great commonwealth since the first of January, and of those accidents 876 were fatal.

It seems to me that we ought to exercise to their limit our minds and our knowledge in order to stop this absolutely appalling slaughter in industry

It is with great pleasure that I have the privilege of introducing to you one who will say a few words of welcome, the most competent and estimable commissioner of labor and industry, John Price Jackson. We here in Pennsylvania are fortunate in two respects. In the first place we have what we believe to be the best laws on the statute books of any state in the Union for the conservation of the health and the life of the worker in industry, and not only good laws, but also have a man of preeminent ability to administer those laws with "fairness to all and with malice toward none."

ADDRESS OF WELCOME

JOHN PRICE JACKSON
Commissioner of Labor and Industry
HARRISBURG

We had during the previous administration a governor who was distinctly a business governor, who believed in a government being run as a business. Following him we elected a governor whose primary idea is that government is service, and the real rulers the people for whom it is constituted, and that the government should, therefore, be constructive in character.

You gentlemen are here today to help in a constructive way. If you thought you were here merely to be entertained, some would not have come, but knowing that you were coming here to add your brains and your knowledge and your experience toward improving conditions in the great commonwealth of Pennsylvania, you came gladly.

The department for the administration of one branch of this great implement for aiding the people as a whole is the Department of Labor and Industry, by a division of which you were called here today. The object of this department is preeminently education and service. It contains certain general subdivisions: For instance, it has a series of employment offices for bringing the man and the position together. This system has just begun, and at present has five offices, but will have a local office in every industrial center within the state in a very few years and it has wiped out the conscienceless private exploiter of labor to a very large extent.

Then there is the Bureau of Mediation and Arbitration, the members of which go to places where there are labor disputes and endeavor by passing from employee to employer, and back again, to prevent the enormous waste which comes from our present unsatisfactory methods of settling disputes between capital and labor.

We have the Bureau of Inspection, which begins to come closer to the object of today's meeting. Here we have men who endeavor to see that the laws of the state relating to the promotion of safety and health are obeyed. They do that so far as is possible by showing the people the desirability of those laws, rather than by the strong arm of power driving these laws down their throats.

We have the Bureau of Statistics, which is closely related to the Division of Hygiene, and gathers the accident reports, tabulates them and turns them over to our doctor for his information, and makes it possible to learn from the data collected methods by which such accidents may be eliminated.

We have the Division of Hygiene and Engineering, which is the part of the department made up of experts. Your chairman, Dr. Patterson, is chief of this division. It is, in a way, the brains of the whole department. The doctor said a number of very pleasant things about me. I suppose I ought to turn around and say a few things about him. I will say this: That, if he should leave our service, I should feel very much lost. He comes up and whispers in my ear what I should do, and I do it. I will say this, further, for the doctor: This department was established three years ago and without compensation and without recognition (he was appointed only recently to the position he now holds) the doctor has been on the job helping this department practically as much time as we would expect from him in a regular position such as he now holds. For three years he has devoted himself to this great work for the people of Pennsylvania. I believe it ought to be known by you people that he has been doing this. I think it is such men as Dr. Patterson who are making the world better.

We have the compensation system, which works right in with the Inspection Bureau. There are two million working men and two hundred thousand employers whom this system reaches; it helps the widow and the orphan or the mutilated man, when an accident, avoidable or otherwise, has happened. That is right in line with humanitarian tendencies.

We also have the Industrial Board which acts as a supervising agency over the whole organization. This board makes rules and regulations for the carrying out of the work of the various divisions, and in all this organization we have called on the doctors of this state for a great deal of help. For instance, when the question came up as to what kind of child can work in this industry, or what kind can work in another industry, without physical injury, what did we do? We called a committee of doctors and they worked over this thing for months, giving a great deal of time to this matter. They finally announced what would be suitable standards on this subject. When we want to know what are reasonable and safe standards for sanitation in a certain kind of industry, we go to the doctors for further information, and the doctors come back readily, and so on right straight along. The doctors have cooperated most effectively in the development of our work.

The police power of this department is absolutely subordinate. The predominate thing is service, and with that service is this kind of cooperation that I am talking about. For every ninety-nine men of this commonwealth who are doing things worth while, there is one bad man, and of course we must use the police power on the bad man, but we can do far better by helping the ninety-nine good men to improve conditions.

I think the medical profession, as a whole, and I am not saying this as a matter of flattery, is practically the most unselfish class of men to be found in our country. Here and there in every profession there is a man who is purely selfish. The medical profession has given itself, from time way back, to helping along in improving health conditions. You will find the doctor in his community is always backing progress, and it is for that reason that we are particularly pleased to have such a gathering as this here, because you men have been working along the same lines and are competent and practical, and know the business. That, in outline, is practically what I wanted to say so far as our department relation to this meeting goes.

I should like to spend a few minutes in bringing to your attention something that is extraneous to this meeting this morning, but which I take every opportunity to emphasize. It is this: A year ago, you remember what an enormous amount of suffering occurred through lack of work for the people who wanted to work. You will remember the enormous waste to this commonwealth which occurred by reason of men, who were willing and able to work, not being able to obtain work. That condition is coming again just as surely as we have had hills of prosperity and vales of depression in the past. It will probably exist with greater severity. Let us try and fill up those vales of depression; let us do it this way. Next winter let us put through the legislature an appropriation bill; let us say to the governor: You with a commission may expend this appropriation on roads and other public projects, but only when times have reached the point when in your judgment that money can go to those who would otherwise be unemployed and their labor wasted, and when conditions of suffering warrant the expenditure of those funds which are to be used only to fill up this deep valley of depression. Let us get to work and find some means whereby our counties, towns and cities may at that time of depression, as announced by the governor and commission, also appropriate moneys so that they can give employment to the man who cannot get work. Let us see to it that this man is able to make a living wage.

I want to bring this to you as people, not as doctors, and I wish you would think about it, as I believe it is important.

I welcome you this morning with unusual pleasure, because you are the medical profession and particularly because you are men who are especially interested in the industries and in safety and health in the industries. I welcome you because you have the capacity of being of the utmost service to this department, to this administration and to the people of the state through the cooperation that you are giving, by coming here this morning and by future cooperation in the work of this department. I assure you that in welcoming you in this way I voice the earnest, sincere welcome which the governor of our commonwealth feels toward you this morning.

Chairman: You will find on your desks a copy of a questionnaire which has been sent out in an effort to try to standardize the very important subject of First Aid. The Industrial Committee of the American First Aid Conference, of which Dr. Bloodgood is the chairman, has received only ten replies to this question from this great commonwealth. I therefore ask that any man who has not answered this questionnaire extend to the Industrial Committee the courtesy of filling in, at his early convenience, the answers to these questions and sending them to me at my office. They will then be coded so that we may be able to go to the meeting which is to be held on the first day of the annual meeting of the American Medical Association in Detroit, with a report which shall be worthy of this great commonwealth.

There are several questions which are today agitating the medical profession, and one of the first questions is, what is the difference between a major and a minor surgical operation. We know that the Compensation Act says that when a major operation is performed the cost shall not exceed $75, as against $25 in the case of a minor operation. I am not gifted with the wisdom of Solomon, and therefore I cannot answer the question, but the State Workmen's Insurance Board has requested that Commissioner Jackson appoint a committee of surgeons from this state, men in industry, to determine this question, and it is our hope that this committee, which will be announced in the course of the next two or three days, will get together and settle this problem. It must be settled in justice to the doctors and in justice to the Compensation Board.

Another problem which is of vital importance to this great commonwealth of Pennsylvania is the subject of health insurance. We are the greatest industrial commonwealth in the world, and it is only right that we should be the leader in every progressive movement. I contend without fear of contradiction that it is absolutely wrong and unfair and un-American that the man who has the misfortune to lose an arm should be compensated for the loss of that arm, but the man who has the misfortune to lose the use of his hand through occupational disease should not receive a cent for that misfortune. The next legislature meets on January 2, 1917, and within a few days the commissioner will ask a group of physicians from this state to consider the whole question of health legislation.

It is a real pleasure to me to be able to announce to you that we are to have the privilege of establishing within the city of Philadelphia, and eventually in other cities of this commonwealth, a clinic devoted exclusively to the study of occupational diseases. The Department of Labor and Industry is particularly fortunate in having been able to enlist the active cooperation of one of the dominant minds of the medical profession in this country. Dr. Alfred Stengel, the distinguished professor of medicine of the University of Pennsylvania, has most courteously agreed to undertake this work in the city of Philadelphia at the University Hospital, where he will shortly establish a clinic for the study of occupational diseases, assisted by physicians under his direction and the Social Service Department of that hospital.

I am sure it needs no words of mine to emphasize to you what a step forward this is when we can have a man of the type of Dr. Stengel, with his great brain, connected with such a work. Dr. Stengel needs no introduction to any body of physicians, but it is my privilege this morning to present him to you and he will address us.

RELATION OF EXTREME TEMPERATURES TO THE EFFICIENCY OF THE WORKMAN

ALFRED STENGEL, M.D.
PHILADELPHIA

Everyday experience during heated seasons of the year has taught men the world over that heat impairs efficiency and must be taken into account in the regulation of times and hours of work. Similar knowledge has been gained in observing the effects of high temperatures encountered in various occupations at all seasons of the year. Under both circumstances the influence of humidity is inseparably linked with that of heat itself, and in the case of indoor occupations ventilation is an additional factor that cannot be left out of account. No discussion of the deleterious effects of heat could be complete in which these associated conditions were left out of consideration though they are of merely subsidiary importance in increasing the effects of the heat itself.

Aside from the vaguely defined debilitating effects of summer heat and of exposure to undue heat in industries or crowded places, we have knowledge of certain quite definite diseases or disorders of health that result from excessive heat, a study of which may prove helpful toward the elucidation of the question of how high temperature acts injuriously and how the unfavorable effects may be combated. Among these definite effects of overheating are sunstroke, heat prostration, certain cerebral disturbances after exposure to the sun or in heated places, heat cramps and ophthalmic disorders. A study of each of these gives a certain amount of information bearing on the matter of the deleterious effects of heat of lesser grade, such as impairs efficiency without causing distinct disease.

Further information has been obtained from physiological studies of the heat-regulating mechanisms under normal and abnormal conditions and from clinical observations on persons subjected to great heat. Direct experimental investigations on lower animals have also contributed some information of importance. Each of these sources of knowledge regarding the effects of heat will be considered in some detail but it may be admitted in the beginning that our comprehension of the whole matter is still very fragmentary.

It is unnecessary to review the physiology of the vasomotor mechanism so important in safeguarding man against variations in external temperature. The range of its action is in itself sufficient evidence of the dangers that lie outside these limits. In tropical countries where the air is dry men endure temperatures in the shade of 120° F. without great inconvenience, and Blagden Forsyth and Dobson[1] found that they could remain for short times (a few minutes) in a room at 225° F. without marked inconvenience or rise of temperature. On the other hand, the ability of men to survive even prolonged exposure to extreme cold in arctic regions is familiar to us all. In this latter case, it is apparent that extra-bodily protection (clothing) plays a larger part in safeguarding the individual than the purely physiologic functions that alone suffice in the case of exposure to heat. Exposure to temperatures far below those above mentioned as endurable for short periods without notable effect occasions disturbances of certain bodily functions when the exposure is somewhat prolonged and particularly when excessive humidity and insufficient ventilation add their unfavorable influence. A considerable number of reports of such observations might be collected from medical literature but there have been surprisingly few attempts at careful investigation in this field. The best study of the matter is that of J. S. Haldane[2] who investigated the limits of temperature in which men can exist normally. His observations were made on men, including himself, subjected to unusual degrees of heat in mines, Turkish baths and incubator rooms, and he refers to experiences encountered by workmen in the cotton and flax industries, in stokeholes and engine rooms, in potteries, salt-drying rooms, etc. In mines he found personally a rise of temperature (101 to 103° F.) accompanied by increase of pulse rate, dyspnea and great discomfort. He concluded that what is of importance is not the actual temperature nor the absolute percentage of aqueous vapor, but the temperature shown by a wet-bulb thermometer. If this exceeds 78° F. continuous hard work becomes impracticable and beyond 88° F. it is impracticable for ordinary persons to remain for long periods of time. In moving air the limits of endurable temperature are extended upward several degrees. Custom or training also increases to an appreciable extent the capacity of individuals to endure the higher degrees of temperature.

It is easily conceivable that when temperatures above 78° F. (wet-bulb thermometer) occasion disturbances of organic function that make continued hard work impracticable, impairment of efficiency must begin at lower grades of heat and possibly continued hard work though endurable would in the long run prove injurious. Haldane did not determine nor make any special investigation of the mechanism of these heat disorders and there is elsewhere in the literature but little that is particularly informing. W. James Wilson[3] states that the effect of excessive heat (tropical) is to diminish respirations (16 to 12) with reduction in the percentage of carbon dioxid in the expired air. On the other hand, he says that the action of the liver and kidneys is probably increased, though the amount of the urine is decreased owing to the excessive action of the skin. Excessive heat has an exhausting effect on the nervous system and in some cases may be so marked that a condition of collapse or heat stroke is produced. Crile[4] found in experiments on dogs that hot air markedly stimulates reflex inhibition of the heart and respirations.

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[1] Phila. Trans., Vol. 65, 1775.

[2] Jour. of Hygiene, 1910.

[3] Textbook of Hygiene.

The effect of heat on the central nervous system was studied by Goltz and by Sir Michael Foster.[5]

Goltz[6] recorded that if a brainless frog is placed in a vessel of water and the temperature is gradually raised to 40° C. no movements take place; the frog at last becomes perfectly rigid and dies without an attempt to escape. An uninjured frog, on the other hand, becomes violent in its attempts to get away as soon as the temperature reaches 30° C. or thereabouts. Foster confirmed these observations and in varied experiments concluded that the reduced reflex activity of the cord as a result of gradual increase of temperature is due to the overheated blood reaching the cord. When the brain is intact, movements are still carried out because less sensory impulses are needed to excite motion when the brain is active.

One might with considerable justification accept these observations as suggesting the manner in which heat occasions the indefinite depression or debility unaccompanied by noteworthy disorder of any special bodily functions during hot summer days or in the industries before referred to.

Some added information has been obtained from the study of the "heat diseases." Studies made in cases of heat stroke (insolation), heat prostration and heat cramps indicate that disorders of metabolism and perhaps autotoxemia must result from the excessive heat and in part, perhaps largely, occasion the clinical phenomena. In the case of heat stroke and heat prostration the direct effect of excessive temperature on the central nervous system somewhat in the manner suggested by Sir Michael Foster's experiments is doubtless an important factor. Perhaps the same thought applies in the case of heat cramps though in this condition the evidence of disturbance of metabolism is more definite.

Myers[7] first described muscle spasms due to heat and referred to the more or less generalized cramps found among stokers. In 1908 Elliott[8] described violent cramps in men in the firerooms of vessels and reported a fatal case with necropsy. Nothing was found except some renal congestion. Edsall[9] has contributed largely to the subject. He found increased output of nitrogen, phosphorus and sulphur, all of which signify active muscular catabolism. During the continuance of the cramps and for some days following, chlorids are practically absent from the urine. He attributes the cramps to the effects of heat and finds no evidence of involvement of central or peripheral nervous system, though a bilateral symmetrical distribution somewhat suggests nervous origin.

Clendening[10] reports cases occurring among cooks in Pullman dining cars and refers to other published cases. In his cases there were painful muscle cramps in the legs and abdomen.

Aside from these general conditions resulting from excessive heat, there are recorded a few observations regarding disturbances of the eyes. Ropki[11] states that Squint described cases of right-sided cataract in right-handed oven workers and left-sided cataract in left-handed workers. deSchweinitz finds changes in the eye grounds of men working at puddling furnaces that enable him to determine whether the individual is right or left-handed, according to the eye specially affected.

This review of the evidence obtained in studies of men subjected to excessive heat and of the heat diseases, though brief and incomplete, is sufficient to indicate that beyond certain degrees of temperature the defenses of the body become impaired and are insufficient and disordered function results; and the observations of Haldane, confirmed by other though less carefully conducted investigations, furnish us with a standard that may be accepted at least as a working basis. It is apparent, however, that we are far from having the detailed information that will enable us to lay down definite rules regarding the dangers of certain industries entailing exposure to high temperatures or to specify measures of safety. It is clear that unusual degrees of heat constitute a hazard that requires for its mitigation active physiologic functions and the best surrounding conditions (ventilation, control of humidity and safety devices to reduce the heat itself). It cannot be too much emphasized that the general health and condition of workmen engaged in these industries require more than usual care. It does not fall within the limits of my topic to discuss the regulations desirable in factories to safeguard the health of workmen subjected to heat, but I do wish to refer to the presentation of this aspect of the problem by C. A. Winslow.[12]

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[4] Cincinnati Lancet Clinic, 1899, xliii.

[5] Jour. Anat. and Physiol., 1874.

[6] Functionen der nerven centern des Frosches.

[7] Virginia Med. Semi Monthly, Dec. 24, 1897.

[8] Military Surgeon, March, 1908.

[9] Jour. A. M. A., Dec. 5, 1908; Am. Jour. Med. Sc., 1904, Vol. 2; Trans. Assn. of Am. Phys., 1909.

[10] Jour. A. M. A., May 7, 1910.

[11] Handbuch Arbeiter Krankheiten, 1908.

Chairman: I am sure we have all been enlightened by the admirable address of Dr. Stengel, and I am going to ask Dr. Schereschewsky, who is located in Pittsburgh and active in cooperation with this department, to open the discussion.

Dr. J. W. Schereschewsky, Pittsburgh: Mr. Chairman and Gentlemen: I am sure that the general proposition of the effect of the extremes of temperature on the human body could not be more ably expounded to you than it just has been by Dr. Stengel. Dr. Stengel stated that he hoped that in the course of the discussion I might have some tangible statistics to offer in regard to the effect on efficiency of continued exposure to such extremes of temperature. Unfortunately I have none, because I do not know as yet where any such statistics have been compiled. The Public Health Service, in the course of its surveys, hopes to enter into this question of the effect of extremes of temperature on the human body. Just the same it seems to me from the evidence which Dr. Stengel has given us that exposure to extremes of heat must eventually interfere markedly with the efficiency of the man and reduce the health and the period of economic productiveness of the individual so exposed.

Dr. Stengel has laid emphasis on the fact that it is not the dry-bulb temperature that is injurious but the wet-bulb temperature. Now I did not realize that until I began to look it up. I think a good many of us do not.

At a low temperature the body begins to make some defense against heat retention. Most of us would hardly think, for instance, that when the wet-bulb temperature is around 62 degrees F. or 63 degrees F. that we are beginning to make some defense, but such is the fact. At that very moderate temperature we are obliged to get rid of considerable heat by means of evaporation as a defense process. How much more then, of course, is that process of evaporation called on when the wet-bulb temperature begins to rise?

Now I should like to add perhaps one other thing to the clinical situation which Dr. Stengel has depicted, and I think it is best found among persons who live in temperate climates but move to the tropics, that is the gradual reduction of strength and vitality. I know of instances where persons in poor state of health, who lived in New England, moved down to New Orleans, which is a very hot climate with high degree of wet-bulb temperature; in the course of a residence of two years they became greatly reduced in weight, profoundly anemic and went into tuberculosis, but still their return to a more temperate climate was followed by a very rapid gain in weight.

It is evident that exposure to high wet-bulb temperatures produces changes in the body. One interesting experiment which Professor Lee performed in the course of his work as a member of the New York Ventilation Commission is worth citing here. Professor Lee took a cat, placed it in a hot, humid atmosphere for a definite length of time. It was kept there continuously for two or three hours. When the cat was taken out it appeared perfectly normal, yet on removing a small portion of the gastrocnemius muscle, it was apparent that the contractions per second, produced by the Faradic current, were only about half as many as produced in a similar piece of muscle which was extracted from a cat which had not been so exposed.

We have here the objective evidence of the effects of such hot, humid conditions on muscular efficiency. Now it is evident, too, that there is a safety factor besides this great physical factor. There is evidently the safety factor in continuous exposure to hot and humid atmosphere, as Professor Stengel has pointed out how the spinal cord becomes less efficient under hot conditions. We are familiar with that drowsy feeling which is evident as we begin to suffer from the effects of the heat. Under such conditions the accident rate must invariably increase. We have here two influences at work which have not only a direct destructive effect on the body itself, but also a further liability of such increase, and Dr. Patterson has already called your attention to the enormous prevalence of accidents in this state. We all know that heat-exposed industries are very common in the state of Pennsylvania; it is quite possible that the high accident rate at present in this state may also be associated with the fact that coordination is diminished because of the constant exposure of the worker to extremes of temperature.

There is one other thing I wish to point out and that is while exposure to heat is *per se* an accompaniment of many industries, nevertheless precautions are not taken as a general rule to minimize it. While the temperatures must under certain circumstances be necessarily high, they do not have to be so high as they are found in some plants. We often find exposed steam pipes radiating a tremendous amount of heat. There is no reason why we should find firerooms so arranged or constructed that ventilation can hardly be obtained in them, and that a sufficient amount of fresh air is not introduced to minimize the effects of heat.

Again we find that water supplies are inconveniently arranged so that the workman, instead of drinking often and in small quantities, is obliged to refrain from drinking until his thirst is such that he drinks large quantities of water at one time, and thus suffers from heat cramps and maybe dilatation of the stomach. No adequate provisions are furnished for having a rapid circulation of air by the use of fans, and the effect of heat is not minimized by the use of proper screens. Moreover, there does not seem to be any general practice of finding out what are the actual temperatures in workrooms by means of making observations with wet- and dry-bulb thermometers. It seems to me that what is of even more importance than this is that industrial physicians should study this question. We require more evidence on which to base proper regulations. There is an unusual opportunity to help collect that evidence, and to study the clinical symptoms which make their appearance in workers in their immediate charge, and also the wet-bulb temperature at which such symptoms make their appearance.

Now Dr. Stengel mentioned the effect of heat on the eye and thought I might be able to say something about that. That question, I believe, has not been thoroughly settled as yet. Personally I have not been able to find any evidence regarding the effect of heat as detrimental to the eye. The eye, of course, has a great power for absorbing heat. The conjunctiva absorbs from 80 per cent. to 85 per cent. of all radiant heat which strikes it, and before it reaches the retina it has to enter the anterior chamber of the eye and then pass through to the vitreous. Both of those have an absorbing power practically similar to that of water. Therefore, if on the one hand the conjunctiva absorbs 85 per cent. of the heat which strikes the eye, it seems rather difficult to see how there can be very much left by the time the retina is reached, but on the other hand it seems possible that continuous exposure to light may effect structural changes which are evidenced in the retina. Whether, of course, these changes are very marked will require some further investigation. I know that at present the Public Health Service is conducting an investigation of the steel workers at the Duquesne Steel Company. We are giving special examinations to men exposed to high degrees of radiant heat, such as first and second helpers in open-hearth furnaces. As far as our statistics show we have found that in open-hearth furnaces the amount of radiant heat and light seems to be greater than in any other process of the steel industry. So far we have not been able to find any change in the eye ground which might be laid to the exposure to radiant heat.

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[12] American Labor Legislation Review, Vol 2, No. 2, 1912.

I should expect that light would be a far more powerful factor in producing intraocular changes than heat as the eye is essentially constructed to respond to light. One would think, therefore, that exposure to excessive light would be more destructive than exposure to heat, as heat penetrates but a very short distance through the ocular structures. In exposure to ultra-violet rays it might be possible. And in cases where metabolism is affected by exposure to intense heat there may be changes in the mineral content of the lens so that the light and not the heat of the furnace might be competent to produce cataract. Of course, when we are exposed to great heat, great evaporation takes place *per se*. It is quite conceivable under such circumstances for the mineral content of the lens to be increased. Perhaps under such conditions this excessive light from the furnaces (in all industries where you have great heat you have great light) might be competent to produce eye changes that would be then an indirect action of the heat.

There is another point to which I want to call attention, and that is in considering the effect of heat on the worker, we cannot dissociate his home conditions. It seems evident to me that where a worker is exposed to extremes of heat, if he can go home to a comfortable house and to a comfortable room where he can sleep in a constant change of air during his period of rest, it enables him to return to his labor refreshed and able to cope with the extremes of heat to which he is exposed. If on the other hand in addition to being exposed to heat he has to sleep in a house closed in on all sides, with the absence of any through ventilation and perhaps in a room against a wall which has been heated by the rays of the sun, so that he sleeps during the night at a temperature of 85 or 90 degrees F., it seems evident to me under those conditions that such workers will of necessity be far more susceptible to hot working conditions.

There is also one other point which I think is valuable to workers, and that is the frequent use of the bath. We all know that when one takes a cold bath the heat loss is very great and continues for quite a little while after the bath, so it seems to me that frequent bathing on the part of the workers who are exposed to excessive heat is one of the most valuable means we have for preventing them from suffering from heat prostration.

Chairman: I am sure that Dr. Schereschewsky's very able discussion of Dr. Stengel's paper has been very helpful. These meetings are held for the interchange of opinions. I hope you men will not hesitate at all to get up and personally discuss the paper.

Dr. A. W. Colcord, Clairton: I have been much interested in Dr. Stengel's most excellent paper. I gave Dr. Edsall reports of eighty heat cases while he was making his investigations, and have watched his work with interest. Since then I have seen several hundred cases that were, at least in part, the effect of heat. We classify them as "heat stroke," "heat exhaustion," "mixed or autointoxication" cases, and "mill cramps." In the "heat" cases we have had some very high temperatures—one case lived with a temperature of 111 degrees F., although most of those cases die. The "heat exhaustion" cases are essentially shock, both in symptoms and treatment. The "mixed or autointoxication" cases usually show a slight rise in temperature, 99 to 101 degrees F., and often have pains or cramps.

The men in our mills who are exposed to the greatest degree of heat do not suffer from any of these conditions. We have men who are exposed for a short time to 250 degrees F. and I have never had a single case from this group. They come almost entirely from the foreigners. They are new men, not yet acclimated; all are alcoholic, mainly heavy drinkers. They eat food that is poor in quality and poorly cooked. It is eaten at irregular intervals and many of them overeat. They live in crowded quarters with dirty surroundings, rarely take a bath, and sleep with their windows down tight, sometimes as many as ten sleeping in one small room. I had at one time nine stretcher heat cases, and everyone was a man of this class.

A word about sunstroke: I do not believe there is any such thing as sunstroke as an entity. I have watched carefully for the difference in symptoms between those cases suffering from the heat of the sun and those suffering from artificial heat, and I never have found any difference. I believe that aside from the heat of the sun's rays, which is precisely like that from any other source, the only effect of the sun's rays is the chemical effect, mainly from the ultra-violet rays, and that the effect of this is only skin deep, producing only sunburn, blistering, conjunctivitis or retinitis.

I am aware that the textbooks claim there is a difference, and Dr. Titus of New York, one of our best authorities on this subject, believes that there is such a thing as sunstroke, but actual experience with large numbers of these cases does not seem to bear it out.

Dr. Sidney McCurdy, Youngstown, O.: I have been very much interested in the subject of heat cramps and have had quite a bit of experience in taking care of heat cramps. There are some peculiar things connected with them that I think it well to bring out today. It seems to me, from the character of the work, one or two of the factors that are most concerned are the excessive amount of muscular effort produced by the man to do his work plus a bad humidity. We have in one class of mills from which we receive the largest number of cases of heat cramps men who work eight hours a day, with all sides of the building open, and it is in these men who are doing a large proportion of muscular work that cramps appear.

In another part of the mills we have persons who work about the same length of time as these other men, in enclosed places with the temperature ranging from 110 to 140 degrees, but their muscular exercise is not great and we have no cases of heat cramps whatever from this part of the mill.

It seems to me that there is some relation between the excretions and the production of cramps. We have had this experience repeatedly. Men have come to us and said that they had stopped sweating and that they knew enough to go home. In one of our shops the men, in going to and from their work, have to cross a long bridge, on which they cool off quickly. I have seen men on their way home from work drop over on this bridge with heat cramps and have to be picked up and taken to the hospital. It seems to me that there is some relation between the ability of the individual to eliminate by means of this sweating process some of the toxic matter that is produced and probably increased by excessive muscular exercise and the appearance of heat cramps.

We found that where the work required great exertion the men who had a moderate rise of temperature of 99 to 99½ and sometimes 100 degrees F., refused to go home from work because they felt all right. It seems to me that there is a direct relationship between the humidity of the mills and cramps. These things occurred on the days that we recognized by our own feelings were stuffy, bad days. When they occurred they were always associated with the prevention of elimination by means of sweating.

Dr. George H. Halberstadt, Pottsville: I wish to make a few remarks in relation to the sleeping conditions. The men in our collieries use coal oil lamps in their homes. This is true not only in the coal regions, but also down in the farming regions.

A great many people are afraid of fresh air at night when they should have it. Our throat and lung troubles, I believe, originate largely in the bedrooms where, instead of being rebuilt, their constitutions are still further undermined. I talked to our men several years ago about this and they threw up their hands in horror.

The way I put it was, "Go home tonight, sleep under the same conditions that you generally do, get up in the morning, walk one hundred yards in the fresh air, go back to your room and see what sort of an atmosphere you have been sleeping in." This is true among a large part of the population of our section of the state of Pennsylvania. Take up the matter and ask about the sleeping conditions from anybody. The sooner these people have a supply of fresh air entering their bedrooms at night, the sooner all throat and lung troubles can be avoided. It is almost universally the cause of a great deal of unnecessary suffering.

Chairman: There used to be a saying in the old days that figures make very dry reading, but there are two men in the United States who are able to take figures and weave them with their mystic wands so that what under other hands becomes befogged light, when expressed by these two men becomes live, open factors of our daily life.

I refer to Dr. Frederick L. Hoffman, distinguished statistician of the Prudential Life Insurance Company, and also to his assistant, Dr. Frederick S. Crum, who is with us this morning.

It will be our pleasure to hear from Dr. Crum on a subject which is of vital importance to every industry in this land, because we all know that dust and fumes are the foes to modern industrial life.

THE MORTALITY FROM DISEASES OF THE LUNGS IN AMERICAN INDUSTRY

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Ramazzini, in the opening chapter of his classic work entitled "Of the Diseases of Tradesmen, or Such as Live by Particular Exercises and Callings," makes the following statement:

> "The various and numerous train of diseases that accrues to artificers from the exercise of their respective trades is, in my opinion, owing chiefly to two causes: namely, first the noxious quality of the matter that goes through their hands, which by breathing out nocive steams and thin particles offensive to human nature, gives rise to particular diseases; and in the next place certain violent and disorderly motions, and improper postures of the body, by which the natural structure of the vital machine is so undermined as gradually to make way for grievous distempers."

From this statement it is evident that Ramazzini, who wrote toward the close of the seventeenth century, appreciated the effects of dusts and fumes on the health of workmen, and that he considered the inhalation of dusts and fumes as of primary importance, as is indicated by the fact that he gave first consideration to the occupations which he thought were health-injurious because of the deleterious substances handled by the workmen. All of the prominent authors who have written on occupational diseases, from the time of Ramazzini, have been unanimous in their agreement that dust is one of the most important factors in occupational or industrial diseases, particularly diseases of the respiratory system, both tuberculous and non-tuberculous.

Industrial dust, or the dust created in industrial processes, is largely of an inorganic nature, but the atmosphere where work is carried on is also frequently polluted or contaminated by living germs, microbes, bacteria, fungi, and moulds, which may or may not be of a pathogenic or disease-producing nature. The best authorities, however, seem to agree that vitality is almost always reduced by a contaminated atmosphere, quite irrespective of the nature of the organic or inorganic impurities.

It is conservatively estimated that of 44,000,000 American wage earners of both sexes, about 5,500,000, or 12.5 per cent., work under conditions more or less detrimental to health and life on account of atmospheric pollution predisposing to pulmonary tuberculosis and other respiratory diseases.

For several years scientific researches have been carried on to determine the relation of the atmosphere to human life and health. Conspicuous among these have been the papers published by the Hodgkins fund of the Smithsonian Institution. As a result of these investigations much exact information is now available to emphasize the importance of atmospheric purity upon working conditions. It has been proved that the amount of air passing into the lungs is about 400 cubic feet per day of twenty-four hours in a state of rest; 600 cubic feet in normal exercise, and 1,000 cubic feet in severe exertion. It has also been demonstrated that the epithelium or membranous film between the blood and air is exceedingly thin in the lungs and in many parts the capillaries are exposed, in the dividing walls of cells, to air on both sides. A consideration of these facts is of vital importance in any investigation of atmospheric impurities in work places, for even if we assume that a large proportion of the inhaled dust enters the digestive tract rather than the respiratory passages and lungs, it must still be evident that dust particles, no matter how minute, must ultimately seriously affect the breathing apparatus, once they find lodgment in the bronchial tubes and lungs.

That certain trades and occupations are much more unfavorable to health and longevity than others, is now susceptible of statistical proof. Sufficient reliable data have been collected, particularly in England, Scotland, Denmark, Germany, France, South Africa, the United States and elsewhere, to prove beyond doubt that men and women employed in dusty occupations are subject to excessive morbidity and mortality from respiratory diseases, both tuberculous and nontuberculous. The mortality statistics for this country indicate that the mortality from tuberculosis of the lungs has declined gradually from an average annual rate of 32.0 per 10,000 of population for large American cities for the five-year period ending with 1884 to 16.1 per 10,000 of population for the five years ending with 1914. The statistics for the registration states also indicate that there has been a reduction in the mortality from other respiratory diseases in recent years, or, from a death rate of 24.8 per 10,000 of population in 1900 to a rate of 18.0 in 1913. It is doubtful if the reduction in the mortality from respiratory diseases, tuberculous and nontuberculous, has thus far been due in any large part to improved workshop and factory conditions. There is reason to hope, however, that in the immediate future these conditions will be considerably improved, and so much so that the mortality from respiratory diseases and tuberculosis of the lungs in the so-called dusty trades will decrease much further and more rapidly in the future than in the past.

In this paper I shall confine myself principally to a consideration of the apparent effects on mortality in certain occupations or groups of occupations which expose the workmen therein to different kinds of dust, that is, to metallic dust, mineral dust, vegetable fiber dust, animal and mixed fiber dust, municipal dust, and dust of a general organic nature. The mortality statistics seem to indicate quite clearly that the injurious effects of these different kinds of dust are quite different in degree; for illustration, the mortality from diseases of the lungs in occupations exposing the workmen to metallic dust is higher than in occupations exposing the workmen to mineral dust; and both the metallic and mineral dusts are apparently more health-injurious than most fiber dusts or animal fiber dusts of a nonpoisonous nature.

Although considerable emphasis will be placed on the differences in the comparative mortality rates in different groups of occupations, it must be clearly understood that these differences between the normal mortality from respiratory diseases, tuberculous and nontuberculous, and the mortality from the same causes in the occupations considered are not necessarily entirely due to the inhalation of dust. The intention simply has been to point out that in all probability much if not most of these differences are to be attributed to the primary factor of dust. In an occupation, for illustration, like that of engraver, the question may very well be raised as to whether the excessive mortality from respiratory diseases among workmen in that employment may not be due to the constrained position and confined space in which these men work. On the other hand, there can be little doubt that the excess in mortality from diseases of the lungs among copper miners is due primarily to the inhalation of dust, when we know that their mortality from these causes is considerably in excess of that of coal miners and that one of the principal differences in the objective conditions to which these two groups of miners are exposed is the character of the dust inhaled by them.

The statistical illustrations in this paper will be limited, in the main, to the mortality experience of the Prudential Insurance Company of America in its industrial branch, during the six-year period 1907-1912. They will further be limited to the mortality experience of males, ages 15 and over. The number of deaths in this experience, of all occupied males, aged 15 and over, during this six-year period was 162,763. The number of deaths in specific occupations which may properly be classed as dusty occupations was 28,604, or 17.6 per cent. of the total: Of the total mortality in these dusty occupations 3,670, or 12.8 per cent., occurred in occupations exposing the workmen to metallic dust; 4,336, or 15.2 per cent., occurred in occupations exposing the workmen to mineral dusts; 1,887, or 6.6 per cent., occurred in occupations exposing the workmen to vegetable fiber dust; 1,454, or 5.1 per cent., occurred in occupations exposing the men to animal or mixed fiber dust; 10,789, or 37.7 per cent., occurred in occupations exposing the workmen to street or municipal dust; and, finally 6,468, or 22.7 per cent., occurred in occupations exposing the workmen to general organic dust. In these six groups of occupations there occurred during this six-year period 7,943 deaths from pulmonary tuberculosis, or 27.8 per cent. of the aggregate mortality from all causes; and there were 3,330 deaths from respiratory diseases other than tuberculosis, or 11.6 per cent. of the aggregate mortality from all causes. Deducting these statistics from those of all occupied males in this experience, it is found that in the nondusty occupations the total mortality of occupied males was 134,159, and of this total 26,438, or 19.7 per cent., was caused by tuberculosis of the lungs, and 16,565, or 12.3 per cent., was caused by nontuberculous respiratory diseases.

Without taking into consideration age periods, it is evident from these statistics that the mortality from tuberculosis of the lungs in the dusty occupations was 41.1 per cent. in excess of the mortality from tuberculosis in the nondusty occupations. The adult males in dusty occupations showed an excess mortality from all diseases of the respiratory system, tuberculous and nontuberculous, of 23.1 per cent., as compared with males in nondusty occupations.

As the number of insured persons is not known by occupation in the industrial branch of the Prudential, it is impossible to calculate death rates on the basis of living males and with distinction of occupation and of age. The method here followed, therefore, is that known as the proportionate method, by which the proportion of deaths from any particular disease, such as pulmonary tuberculosis, is calculated as a percentage of the deaths from all causes occurring in a specified period of life or age group. If, for illustration, we know that of the total mortality of stone and marble cutters at ages 35 to 44, 56.5 per cent. was caused by tuberculosis of the lungs, while in contrast, among farmers, in the same experience, of those dying at ages 35 to 44 only 25.1 per cent. died from tuberculosis of the lungs, we have a very specific and for all practical purposes an accurate measure of the true comparative incidence of pulmonary tuberculosis in these two occupations. In other words, the Prudential industrial mortality experience shows that there was an excess mortality from tuberculosis of the lungs at this age period among stone and marble workers of 125.1 per cent., when comparison is made with the mortality of farmers at the same age period and from the same cause.

The varied effects of the different kinds of dust on the mortality from tuberculosis of the lungs and other respiratory diseases are best seen in the contrast in the mortality rates in specific occupations, or in groups of occupations exposing the workmen to the various kinds of dust. For illustration, in the group of occupations in this experience in which the workmen are exposed to metallic dust, it is shown that at ages 25 to 34 the mortality from tuberculosis of the lungs was 36.9 per cent. in excess of the mortality at the same age-period among workmen in the nondusty occupations. In the group of occupations exposing the workmen to mineral dusts the excess in the mortality from tuberculosis of the lungs, ages 25 to 34, was 10 per cent., as measured against nondusty occupations; and at ages 35 to 44 the excess was 22.3 per cent. In the occupations exposing the workmen to vegetable fiber dust the mortality from tuberculosis of the lungs at ages 25 to 34 was 38.4 per cent. in excess of the mortality from this cause in nondusty occupations; and at ages 35 to 44 the excess was 31.3 per cent.

Metallic dust is probably, all things considered, the most hurtful of the various kinds of dust. The metallic dust particles being hard and usually sharp, and jagged or angular, cut the lung tissue, setting up a fibrosis which is itself all too frequently fatal, or it prepares the way for the tubercle bacillus, making its deadly work much more certain than it otherwise would be. Some of the metallic dusts are injurious also because of their poisonous qualities and in this class probably lead is the most important, and arsenic and mercury second and third, respectively, in importance as factors in occupational diseases.

In the Prudential experience the group of occupations exposing the workmen to metallic dust shows the most disastrous results, as evidenced in the mortality returns from both tuberculosis of the lungs and other respiratory diseases. At ages 25 to 34, taking the group as a whole, of the total deaths 53.9 per cent. were caused by tuberculosis of the lungs and 8 per cent. were from other respiratory diseases. Respiratory diseases at this age period together caused an excess mortality of 25.3 per cent. if comparison is made with the mortality from these diseases in the nondusty occupations. At ages 35 to 44, tuberculosis of the lungs caused 44.7 per cent. of the total deaths and the other respiratory diseases caused 9.7 per cent. In other words, respiratory diseases, tuberculous and nontuberculous, caused 54.4 per cent. of all the deaths of occupied males, ages 35 to 44, in the group of occupations exposing to metallic dusts, in the Prudential experience. This represents an excess mortality from these causes of 22.2 per cent. as compared with the nondusty occupations in the same experience.

PROPORTIONATE MORTALITY FROM PULMONARY TUBERCULOSIS AND FROM OTHER RESPIRATORY DISEASES AMONG GRINDERS IN SHEFFIELD, ENGLAND, 1889 to 1910, BY AGE PERIODS

Ages at Death	Deaths from All Causes	Deaths from Pulmonary Tuberculosis		Deaths from Respiratory Diseases Other Than Pulmonary Tuberculosis	
		Number	Per Cent. of Total	Number	Per Cent. of Total
Under 25	98	43	43.9	22	22.4
25-34	299	173	57.9	51	17.1
35-44	515	303	58.8	81	15.7
45-54	687	336	48.9	169	24.6
55-64	548	178	32.5	184	33.6
65 and over	343	37	10.8	114	33.2
Total	2,490	1,070	43.0	621	24.9

Specific occupations in this group with exceptionally high mortality from lung diseases are cutlery makers, file makers, metal grinders and polishers, brass workers, printers, engravers, tool makers, gold beaters, etc.

Metal grinders, polishers and buffers invariably show a high mortality from respiratory diseases as a direct result of their inhalation of metallic dust particles. The peculiar effect on the lungs of metallic dust is described by some writers on occupational diseases as "grinders' rot."

In the Prudential experience, metal grinders and polishers show an excess mortality from tuberculosis of the lungs at ages 25 to 34 of 60 per cent., and at ages 35 to 44 an excess of 107.1 per cent. The mortality of this class of workmen from other diseases of the lungs was practically the same at ages 25 to 44 as in the nondusty occupations.

Perhaps the most frequently quoted mortality experience of grinders is that of Sheffield, England, where the cutlery trade is centered. The medical officer of health of Sheffield has published these data in detail in his annual reports up to and including the year 1910. Since that date, however, these returns have been discontinued. The Sheffield experience for the period 1889 to 1910 shows that 67.9 per cent. of all the deaths of grinders was caused by respiratory diseases, 43 per cent. representing tuberculosis of the lungs, and 24.9 per cent. representing other respiratory diseases.

The proportionate mortality from these diseases among grinders was excessive at all ages in the Sheffield experience, ranging from 75 per cent. of the deaths from all causes at ages 25 to 34 to 44 per cent. at ages 65 and over.

According to the 1910 census there were 3,643 metal grinders, polishers and buffers in Pennsylvania. Probably this is an understatement, but even this number is an indication of the practical importance in this state of the problem how best to remove the dust created in grinding and polishing processes at the point of origin so that it will not be inhaled by the workmen.

In New Jersey in recent years some exceptionally satisfactory results have been obtained in the effort to solve this problem. Devices have already been quite generally installed in metal polishing and buffing establishments, and with very satisfactory results. Only recently I have been informed by the expert in charge of this standardizing work that there has already been a marked decrease in the sickness and mortality of polishers and buffers, so much so that the results are evident in the returns compiled by the Polishers' and Buffers' Union.

This specific illustration emphasizes the fact that much if not most of this excessive mortality from respiratory diseases in certain dusty occupations is preventable. It is proof that metallic dust may be removed at the point of origin and eliminated from the air of workrooms in a thoroughly efficient and practical way by means of apparatus already fairly well standardized.

According to the 1910 census some 21,000 workmen of Pennsylvania were employed in occupations exposing them to an unusual amount of metallic dust. The problem of metallic dust removal is, therefore, an important one in this state.

On account of the number of workmen exposed thereto and the damage wrought to health, mineral dust is one of the most important of the occupational hazards in American industry. Fortunately, for some reason or reasons not quite clear, the dust of coal, one of our most important minerals, seems to be among the least harmful of the various mineral dusts as regards tuberculosis of the lungs. In Pennsylvania alone some 300,000 men are employed in coal mining and probably 250,000 of them are exposed in greater or lesser degree to coal dust. In the United States some 800,000 men are employed in coal mining and probably at least 650,000 of them are exposed to an exceptional amount of coal dust in the course of their respective specific employments. In the Prudential industrial experience, at ages 25 to 34, only 14.2 per cent. of the deaths of coal miners was due to tuberculosis of the lungs and only 7.5 per cent. was due to other respiratory diseases.[1] In nondusty occupations the same experience shows that 40.1 per cent. of the total deaths at ages 25 to 34 was from tuberculosis of the lungs and 9.3 per cent. from other respiratory diseases. Similarly, at ages 35 to 44, coal miners showed a proportionate mortality from tuberculosis of the lungs of 12.3 per cent. and from other respiratory diseases of 16.2 per cent. At this age period the coal miners show an excessive mortality from nontuberculous diseases of the lungs, equal to 40.9 per cent. as compared with the nondusty occupations, but the mortality from tuberculosis of the lungs was 61.8 per cent. less at this age period than in the nondusty occupations. Throughout life coal miners, according to this experience, show a relatively low mortality from tuberculosis of the lungs, but at the higher ages the mortality from nontuberculous respiratory diseases is quite excessive, or 40.9 per cent. at ages 35 to 44; 84.7 per cent. at ages 45 to 54, and 76.1 per cent. at ages 55 to 64. Coal dust and other working conditions in our coal mines seem to affect injuriously the air passages and lungs and the general vitality to the extent that coal miners are made more susceptible to such diseases as pneumonia, bronchitis and asthma, but, on the other hand, they are singularly free from tuberculosis of the lungs.

When we consider miners of metalliferous ores we find the results quite different than for coal miners. In the Prudential experience, lead and zinc miners show an excessive mortality from tuberculosis of the lungs—an excess equivalent to 57.1 per cent. at ages 25 to 34, and 107.1 per cent. at ages 35 to 44. The mortality among these men from other respiratory diseases is about the same as among men in nondusty occupations, their mortality, apparently, being somewhat lower than the normal from these diseases.

MORTALITY OF COPPER MINERS

Ages at Death	Montana, 1907-1914: No. of Deaths from All Causes	Montana, 1907-1914: Deaths from Tuberculosis of the Lungs: No.	Montana, 1907-1914: Deaths from Tuberculosis of the Lungs: Per Cent.	Montana, 1907-1914: Deaths from Respiratory Diseases Other Than Tuberculosis of the Lungs: No.	Montana, 1907-1914: Deaths from Respiratory Diseases Other Than Tuberculosis of the Lungs: Per Cent.	Registration Area, Males. 1900-1912 Per Cent. of Deaths Due to: Tuberculosis of the Lungs	Registration Area, Males. 1900-1912 Per Cent. of Deaths Due to: Diseases of the Respiratory System, Other Than Tuberculosis of Lungs
15-24	112	9	8.0	10	8.9	27.3	8.8
25-44	836	323	38.6	168	20.1	26.9	10.7
45-64	557	260	46.7	147	26.4	11.2	11.3
65 and over	104	18	17.3	38	25.3	2.6	11.0
Age not stated	5	1	20.0	1	20.0	....	....
Total (15 and over)	1,614	611	37.9	364	22.6	14.1	10.8

A special investigation based on an analysis of local death returns in Montana during the eight-year period, 1907 to 1914, and representing a total of 1,614 deaths, proves that copper miners are subject to an excessive mortality from tuberculosis of the lungs, equivalent to 7.5 per cent. at ages 25 to 44, when compared with nondusty occupations in the Prudential experience, and no less than 187.6 per cent. at ages 45 to 64. The mortality of copper miners from nontuberculous diseases is also excessive, or 91.4 per cent. at ages 35 to 44, and 92.7 per cent. at ages 45 to 64.

Potters have an excessive mortality from lung diseases, tuberculous and nontuberculous, according to the Prudential experience of 12 per cent. at ages 25 to 34 and 16 per cent. at ages 35 to 44. Other occupations in this group which expose the workmen to mineral dust are glass blowers, glass cutters and other glass workers, workers in marble and stone, core makers in foundries, iron moulders, lithographers, paper hangers, plasterers, lime and cement workers, and paint mixers. All of these employments show the effect of dust on the workmen in the mortality from lung diseases.

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[1] The comparative exemption of colliers in well-ventilated coal mines deserves investigation, for there would appear to be some ground for the supposition that it may be owing to an inhibitive action of this particular dust on the development of tuberculosis; on the other hand, it may be simply through living in fairly good air of an even temperature, where the specific germs of phthisis are few or absent. The homes of the men are generally comfortable, and much larger fires are kept up than in the South, so that their rooms are dry and well ventilated.—From "The Atmosphere in Relation to Human Life and Health," by Francis Albert Rollo Russell, Smithsonian Institution, Washington, 1896.

Cement workers are probably the least affected by mineral dust. This class of workers, like coal miners, seem to be singularly free from tuberculosis of the lungs, and their mortality from other respiratory diseases is not excessive, according to the Prudential experience. This is quite an important industry in Pennsylvania and in 1910 the census returns showed 9,228 men employed in this state in lime, cement and gypsum plants. Doubtless the number of men in such plants has increased since 1910. As the cement industry is of some local importance, it would be interesting to have more knowledge of the diseases to which cement workers are most liable in Pennsylvania. An elaborate investigation has been carried on since 1912 in one of the largest of the various California plants. This plant, the Riverside Portland Cement Company, is located at Riverside. It is equipped with modern machinery but considerable free dust is created and the workmen are much exposed in the packing department. Respirators are not worn, as a rule, even by the packers. A very careful study of the sickness cases in this plant and a research into the possible effects of cement dust in causing or curing tuberculosis of the lungs by the use of inoculated guinea-pigs (some exposed to the dust and others not so exposed) have thus far failed to show that cement dust is injurious in this respect. Dr. George E. Tucker, who is in charge of this investigation, is, therefore, inclined to accept the statement made by Mr. W. Sidney Smith, H.M., inspector for dangerous trades for Great Britain, who in his annual report for 1911 reported as follows:

"Careful inquiry has been made as to the effect of dust on the health of the workers. Sick clubs exist in a number of factories, and particulars as to mortality, invalidity and sick pay have been gathered. These appear to show that the trade is on the whole a healthy one. Deaths are few, absence from work is rare and generally due to influenza, colds or accidents, and sick pay is small. There is often more invalidity among workers in nondusty processes than in the dusty occupations of kiln drawing, milling and packing."

Dr. Tucker's studies in this particular field are very interesting and his latest results are to be presented in a paper which he is preparing for the next meeting of the American Public Health Association. A comparison of conditions in the Portland cement plants of Pennsylvania with those obtaining at the Riverside plant would be interesting and valuable.

THE PROPORTIONATE MORTALITY OF STONE AND MARBLE CUTTERS, PLANERS AND POLISHERS, WASHINGTON COUNTY, VERMONT, 1900 TO 1905

						Registration Area, Males 1900-1912	
		Deaths from Tuberculosis of the Lungs		Deaths from Respiratory Diseases Other Than Tuberculosis of the Lungs		Percentage of Total Mortality Due to	
Ages at Death	Deaths from All Causes	No.	Per Cent. of Total	No.	Per Cent. of Total	Tuberculosis of the Lungs	Respiratory Diseases Other Than Tuberculosis of Lungs
15-24	13	4	30.8	4	30.8	27.3	8.8
25-34	26	10	38.5	3	11.5	30.7	9.8
35-44	44	24	54.5	7	15.9	23.6	11.5
45-54	30	13	43.3	4	13.3	14.7	11.6
55-64	22	11	50.0	3	13.6	7.9	11.1
65 and over	8	4	50.0	..	....	2.6	11.0
Total (15 and over)	143	66	46.2	21	14.7	14.1	10.8

Stone and marble cutters, planers and polishers are exposed to particularly harmful dusts, if we are to judge from their mortality returns. In the Prudential experience the excess mortality from tuberculosis of the lungs at ages 25 to 34 among these workmen was 40 per cent. and at ages 35 to 44 it was 34.4 per cent. This experience is confirmed by other data and it has long been a well known fact that stone cutters are very liable to a fibroid form of pulmonary tuberculosis. In Washington County, Vermont, the general mortality returns are available for the six-year period, 1900 to 1905. These statistics show that pulmonary tuberculosis caused 46.2 per cent. of all the deaths among these workers and other respiratory diseases caused 14.7 per cent. of the total mortality. Diseases of the respiratory system, tuberculous and nontuberculous, were, therefore, responsible for 60.9 per cent. of all of the deaths of stone and marble workers in Washington County, Vermont, during 1900 to 1905. This experience also showed the mortality to be excessive from pulmonary tuberculosis at all age periods, but it was particularly so at ages 35 to 44 and 45 to 54. There were 4,315 stone cutters and workers in Pennsylvania according to the 1910 census, so the excessive mortality in this occupation is an important problem in this state.

Among the occupations that expose workmen to vegetable fiber dust are the cotton and linen textile industries, wood workers and paper makers. The Prudential industrial mortality experience for 1907 to 1912 shows an excessive mortality among the workmen employed in working on these materials. Cotton spinners, for illustration, had an excessive mortality from tuberculosis of the lungs, at ages 25 to 34, equivalent to about 60 per cent., and at ages 35 to 44, the excess mortality from this cause was nearly 90 per cent. when comparison is made with nondusty occupations. Cotton weavers also had an excess mortality from tuberculosis of the lungs equivalent at ages 25 to 34 to 24.7 per cent., and at ages 35 to 44, to 27.3 per cent.

In occupations with exposure to vegetable fiber dust the mortality is not, as a rule, excessive from nontuberculous respiratory diseases at ages under 45, but these diseases are more than normally prominent as causes of death at ages 45 and over.

The mortality returns of cotton workers in Blackburn, England, confirm the statistics of the Prudential and show an excessive mortality from tuberculosis of the lungs among cotton spinners and cotton weavers of all ages and an excessive mortality among these workers from nontuberculous respiratory diseases at the advanced ages. The Blackburn statistics are praiseworthy in that they illustrate the possibilities of a local health department in the way of gathering really valuable vital statistics of workmen employed in prominent local industries. There are many opportunities in this country for equally good returns of deaths in occupations centered in certain localities. In Philadelphia you have large carpet factories; in Norristown large worsted and knit goods mills; in Easton and vicinity large cement mills; at White Mills a great cut glass making plant, etc.

Other specific industries in this group which expose workmen to vegetable fiber dust are knitting mills, lace factories, rope and cordage factories, wood carving, wood turning, and wood furniture polishing and finishing.

The statistical evidence is conclusive that vegetable fiber dust if inhaled in any considerable quantities and over comparatively long periods of time is decidedly health-injurious.

According to the census of 1910 there were nearly 28,000 men in Pennsylvania engaged in occupations exposing them to vegetable fiber dust. Of this total over 5,000 were employed in paper and pulp mills, 5,064 were employed in carpet mills, 3,165 were employed as cabinet makers, 6,365 were employed in knitting mills, and 2,542 in cotton mills. Pennsylvania should therefore be deeply interested in the problem of dust removal and proper air conditioning in the various plants where these dusty trades and occupations are carried on.

Among the occupations in this country that expose workmen to animal and mixed fiber dust the most important is the hatting industry. Although dust is not the only health hazard in this industry it has long been recognized as one of the most important factors tending to undermine the health of hatters. Animal or fur fiber and mercury are the most harmful dusts inhaled by this group of workmen.

Felt hat makers have, in the past, been exposed to such unsanitary conditions, including dust, humidity and poorly ventilated shops, that it is no wonder the effect has been so marked in the mortality returns of these men. In the Prudential industrial experience 60 per cent. of the deaths from all causes among hatters, ages 25 to 34, was from tuberculosis of the lungs, and 9.1 per cent. was from other respiratory diseases. In other words, at ages 25 to 34, 69.1 per cent. of the deaths of hatters in this experience was from respiratory diseases, as against 49.4 per cent. in nondusty occupations. This represents an excess mortality from respiratory disease, tuberculous and nontuberculous, among hatters at this age period of 40 per cent. At ages 35 to 44 the mortality from tuberculosis of the lungs was 50 per cent. of the total, and from other respiratory diseases, 7.6 per cent. as compared with 32.2 per cent. and 11.5 per cent., respectively, in the nondusty occupations. At ages 35 to 44, therefore, hatters in the Prudential industrial experience show a mortality from diseases of the lungs 31.8 per cent. in excess of that of workmen in nondusty occupations.

According to the census of 1910 there were 4,761 felt hatters (males) in Pennsylvania. This problem of excessive mortality from preventable causes in the hatting industry is, therefore, a very practical one in this state. I do not know just how far you have gone in Pennsylvania in your effort to improve the sanitary conditions in the hat factories, but in New Jersey, happily, I can report that in very recent years this industry has been revolutionized by the establishment of sanitary standards and the installation of devices to provide for efficient draft and exhaust ventilation to carry away the dust and steam from the workrooms. I can recommend most highly for your careful consideration the excellent report on this whole subject published by the Department of Labor of New Jersey in 1915, entitled, "Sanitary Standards for the Felt Hatting Industry." There can be no doubt that these improved conditions in the hat shops of New Jersey must result in a reduction in the sickness and mortality of the workmen. Fifteen years ago I visited a typical hat factory in Orange, New Jersey, and this week I revisited the same plant. The present conditions show so vast an improvement over the old that I am confident the hatting industry, in New Jersey at least, can no longer be classed among the most unhealthful of our trades.

Other persons made unhealthful because of exposure to animal and mixed fiber dust, according to the Prudential experience, are carpet weavers, upholsterers, silk mill employees, woolen mill employees, furriers, workers in hair and hair goods, and mattress makers. In this group of employments taken together 53.9 per cent. of the deaths at ages 25 to 34 was from tuberculosis of the lungs, and 11 per cent. was from other respiratory diseases. The mortality from all respiratory diseases among this group of workmen, ages 25 to 34, was 31.4 per cent. in excess of that in the nondusty occupations. At ages 35 to 44 the excess mortality (from all respiratory diseases, tuberculous and nontuberculous) was 20.6 per cent.

The occupations exposing workmen to street or municipal dust are, in the main, those which require the workers to be more or less continuously in such positions that they are compelled to breathe street dust in fairly large quantities over considerable periods of their working time. Men of this class are street cleaners, garbage and refuse collectors, coachmen, cab drivers, hackmen, and other drivers and teamsters in city streets, street car conductors and street car motormen. Probably much of the mortality from respiratory diseases among this class of men is due to the inhalation of infected dust. Street car conductors, for illustration, are exposed to pathogenic germs, and it is generally recognized that some nontuberculous respiratory diseases are contagious, particularly *la grippe* and pneumonia. A part of the excessive mortality of street car conductors is therefore undoubtedly due to direct contact with infected passengers. The excess in the mortality of street car conductors in the age group 25 to 34 was 17 per cent. from tuberculosis of the lungs, as compared with males in nondusty occupations in the same age group. With reference to street cleaners, it has been contended that their excessive mortality from tuberculosis of the lungs is not due in any large degree to the inhalation of infected dust. Whether or not this is true, the fact remains that the mortality from tuberculosis of the lungs is quite excessive among this class, and it is also true that these men inhale a considerable amount of mineral dust in the process of cleaning the average American city street. In the Prudential experience for the sixteen years, 1897 to 1912, street cleaners in the age group 35 to 44 had an excessive mortality from tuberculosis of the lungs of 37 per cent. as compared with males in the registration area 1900 to 1912. Their mortality was excessive also from this cause at all ages over 25. In the light of these statistics it would seem reasonable to assume that a considerable proportion of this excess in the mortality from tuberculosis of the lungs among street cleaners is directly due to their inhalation of dust of various kinds, organic and inorganic.

In Pennsylvania, according to the census of 1910, there were 48,600 men employed in occupations exposing them almost continuously during their working time to street dust. The question as to how far this dust is health-injurious and the problem of how to safeguard these men to the greatest extent possible, are practical and important in this state.

There are many important industries in the group that expose workmen to general organic dust. Among these are bakery establishments, confectionery factories, flour mills, leather making plants, button factories, tobacco factories, boot and shoe factories and celluloid-goods factories. There is conclusive evidence in vital statistics of persons employed in these industries that the various organic dusts created in the making of such products as shoes, leather gloves, harness, belts, pocket books, cigarets, celluloid articles, pearl and bone buttons, flour, candy and bakery foods, are important factors in the mortality from tuberculosis of the lungs and other respiratory diseases. In the Prudential experience, this group of occupations as a whole showed an excess mortality from tuberculosis of the lungs, ages 25 to 34, of 29.2 per cent., and at ages 35 to 44 the excess was 14.9 per cent. At all ages the mortality in these occupations from nontuberculous respiratory diseases was about the same as in the nondusty occupations, but when all respiratory diseases, tuberculous and nontuberculous, are combined the mortality from these causes is shown to have been excessive at all ages. It is important to note that tuberculosis is so prominent a factor in the mortality of bakers and confectioners. Unless health departments vigilantly supervise bakeries and candy factories there is grave danger that consumers of breads, cakes, pies and candies will become infected through the handling of these products by tuberculous employees. It is reasonable to suppose that if the mortality from tuberculosis is excessive among bakers and candy makers the number of sick of this disease must also be excessive, and unless there is thorough medical supervision of such employees the danger of the spread of tuberculosis through these sources cannot easily be exaggerated.

According to the census of 1910 there were over 32,000 men employed in Pennsylvania in occupations exposing them to excessive amount of general organic dust. Of this total 14,000 were employed in tobacco manufacture, nearly 13,000 were employed in leather industries, 2,200 in bakeries and candy factories, and nearly 3,000 in grain and flour mills. The problem of general organic dust removal is, therefore, an important and practical one in this state.

Enough statistical illustrations of the effect of dust and other impurities on the males in various occupations have been brought forward to verify the statement that "Tuberculosis is really a protest against bad air conditions, just as typhoid is a protest against bad water."[2]

This brief survey of occupational mortality from respiratory diseases also supports the following statement by Sir James Crichton-Browne made in an address on "The Dust Problem" before the Sanitary Institute of England in 1902:

"Industrial dust, *per se,* apart from poisonous or pestilential mixture, is a sufficiently interesting theme from a sanitary point of view, for the returns of mortality reveal that notwithstanding the highly successful crusade against it, which has been and is being conducted by our factory inspectors, nobly assisted now by local authorities, intelligent employers, and awakened workpeople, it is still responsible for an appalling amount of suffering, disablement and death.

"The mortality of the principal dust-producing occupations, compared with that of agriculturists who live and work in what is practically dustless atmosphere, is excessive to a startling degree. It is not suggested that this excess is to be ascribed to dust alone; no doubt various factors contribute to it, but the facts that it is due mainly to respiratory diseases, that it is distributed among the several occupations pretty much in proportion to their dustiness, and that it has diminished in some instances where dust has been effectually dealt with, justify the conclusion that it is largely dust-begotten."[3]

Elsewhere in the same address this English writer points out that "industrial dust, or the dust produced in occupations of several kinds is readily recognized and defined, its pernicious effects are well marked and indisputable and it is to a large extent, if not entirely, preventable or removable, and the efforts already made to prevent or remove it have been rewarded with conspicuous benefit."

In conclusion, I may say that it has been repeatedly pointed out that tuberculosis and respiratory diseases in industry are only in part the result of dust or otherwise polluted air. There is also doubtless much infection of healthy persons through direct contact with those ill of these diseases in factories and workshops. All too frequently the general sanitary conditions of our factories, entirely aside from dust, smoke, fumes and gas, are inexcusably bad.[4]

The most effective method of contending with the excessive morbidity and mortality among employees engaged in dusty trades and occupations is undoubtedly by the method of more efficient ventilation. Many contrivances for this purpose are in use and improvements will continue to be made as the importance of the problem of dust elimination is brought more emphatically to the attention of both employers and employees. If once standardized methods of efficient ventilation and dust removal are adopted, we may confidently anticipate a greatly reduced death rate among employees in these occupations in which excessive amounts of industrial dust are created; and with the reduction in the death rate there will, of course, be an even larger gain in the reduction in the amount of sickness and the general improvement in the health of the workmen. This will result in an increased productive power, so that the employers will reap a benefit which will largely offset any expenditure to which they may be put for the installation of the necessary dust preventive devices.

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[2] "Dusty Air and Ill Health," by Robert Hessler, A.M., M.D., p. 294.

[3] "The Dust Problem," by Sir James Crichton-Browne, in Transactions of the Sanitary Institute, 1902, Vol. XXIII, p. 219; ibid., p. 218.

[4] See "Illustration of What is Meant by Industrial Tuberculosis," by E. R. Hayhurst, M.D., Monthly Bulletin Ohio Board of Health, September, 1914.

INDUSTRIAL MORTALITY EXPERIENCE, THE PRUDENTIAL INSURANCE COMPANY OF AMERICA

MORTALITY FROM DISEASES OF THE LUNGS IN OCCUPATIONS EXPOSING WORKMEN TO METALLIC DUST

Males, 1907-1912

	Ages 25-34					Ages 35-44				
	Deaths from All Causes	Tuberculosis of Lungs		Other Respiratory Diseases		Deaths from All Causes	Tuberculosis of Lungs		Other Respiratory Diseases	
Occupations		Deaths	Per Cent.	Deaths	Per Cent.		Deaths	Per Cent.	Deaths	Per Cent.
Chippers, Foundries	2	1	50.0	..	....	6	3	50.0	2	33.3
Wire weavers	6	3	50.0	..	....	5	3	60.0	1	20.0
Cutlery makers	9	4	44.4	1	11.1	10	4	40.0	..	....
File makers	10	7	70.0	1	10.0	10	6	60.0	2	20.0
Grinders and polishers	28	18	64.3	2	7.1	27	18	66.7	2	7.4
Tool makers	25	10	40.0	2	8.0	33	16	48.5	2	6.1
Gold beaters	3	3	100.0	..	....	2	1	50.0	1	50.0
Polishers, gold, silver works	8	4	50.0	1	12.5	5	2	40.0	..	....
Brass workers	47	32	68.1	..	....	79	37	46.8	8	10.1
Jewelers (factory)	59	34	57.6	3	5.1	55	24	43.6	1	1.8
Type founders	1	1	100.0	..	....	3	2	66.7	1	33.3
Engravers	34	15	44.1	6	17.6	24	11	45.8	2	8.3
Pressmen and press feeders	62	32	51.6	10	16.1	56	22	39.3	6	10.7
Printers	297	158	53.2	25	8.4	348	153	44.0	34	9.8
Miscellaneous metal workers	37	18	48.6	1	2.7	25	11	44.0	2	8.0
Polishers, N. S.	75	42	56.0	2	2.7	91	39	42.9	11	12.1
Electrotypers and stereotypers	13	7	53.8	2	15.4	12	3	25.0	1	8.3
Die setters	7	1	14.6	2	28.6	4	...	....	1	25.0
Total for group	723	390	53.9	58	8.0	795	355	44.7	77	9.7
Nondusty occupations	...	...	40.1	..	9.3	...	...	32.2	..	11.5

MORTALITY FROM DISEASES OF THE LUNGS IN OCCUPATIONS EXPOSING WORKMEN TO MINERAL DUST

Males, 1907-1912

	Ages 25-34					Ages 35-44				
	Deaths from All Causes	Tuberculosis of Lungs		Other Respiratory Diseases		Deaths from All Causes	Tuberculosis of Lungs		Other Respiratory Diseases	
Occupations		Deaths	Per Cent.	Deaths	Per Cent.		Deaths	Per Cent.	Deaths	Per Cent.
Potters	56	25	44.6	6	10.7	79	30	38.0	10	12.7
Tile makers	1	...	....	..	....	13	7	53.8	2	15.4
Glass blowers	45	21	46.7	4	8.9	41	15	36.6	2	4.9
Glass cutters	18	10	55.6	1	5.6	14	7	50.0	..	....
Glass workers	69	36	52.2	2	2.9	57	20	35.1	4	7.0
Lime and cement workers	10	3	30.0	2	20.0	14	3	21.4	..	....
Marble and stone workers	62	35	56.5	2	3.2	155	67	43.2	21	13.5
Core makers	39	17	43.6	4	10.3	26	9	34.6	5	19.2
Iron moulders	231	95	41.1	25	10.8	276	90	32.6	46	16.7
Lithographers	28	9	32.1	2	7.1	30	10	33.3	4	13.3
Paperhangers	62	21	33.9	6	9.7	65	30	46.2	7	10.8
Plasterers	58	23	39.7	6	10.3	87	42	48.3	8	9.2
Miners, lead and zinc	27	17	63.0	2	7.4	24	16	66.7	2	8.3
Paint mixers	4	1	25.0	1	25.0	3	2	66.7	..	....
Total for group	710	313	44.1	63	8.9	884	348	39.4	111	12.6
Nondusty occupations	...	...	40.1	..	9.3	...	...	32.2	...	11.5

MORTALITY FROM DISEASES OF THE LUNGS IN OCCUPATIONS EXPOSING WORKMEN TO ANIMAL AND MIXED FIBER DUST

Males, 1907-1912

	Ages 25-34					Ages 35-44				
	Deaths from All Causes	Tuberculosis of Lungs		Other Respiratory Diseases		Deaths from All Causes	Tuberculosis of Lungs		Other Respiratory Diseases	
Occupations		Deaths	Per Cent.	Deaths	Per Cent.		Deaths	Per Cent.	Deaths	Per Cent.
Carpet weavers	19	10	52.6	2	10.5	27	9	33.3	3	11.1
Hatters	110	66	60.0	10	9.1	118	59	50.0	9	7.6
Upholsterers	39	19	48.7	6	15.4	61	27	44.3	5	8.2
Silk mill employees	59	28	47.7	6	10.2	43	17	39.5	3	7.0
Woolen mill employees	9	5	55.6	2	22.2	11	6	54.5	1	9.1
Fur workers	5	2	40.0	..	....	5	2	40.0	..	....
Hair workers	1	1	100.0	..	....	4	...	....	1	25.0
Mattress makers	3	1	33.3	1	33.3	6	3	50.0	..	....
Total for group	245	132	53.9	27	11.0	275	123	44.7	22	8.0
Nondusty occupations	...	...	40.1	..	9.3	...	...	32.2	..	11.5

INDUSTRIAL MORTALITY EXPERIENCE, THE PRUDENTIAL INSURANCE COMPANY OF AMERICA.—Continued

MORTALITY FROM DISEASES OF THE LUNGS IN OCCUPATIONS EXPOSING WORKMEN TO VEGETABLE FIBER DUST

Males, 1907-1912

Occupations	Ages 25-34					Ages 35-44				
	Deaths from All Causes	Tuberculosis of Lungs		Other Respiratory Diseases		Deaths from All Causes	Tuberculosis of Lungs		Other Respiratory Diseases	
		Deaths	Per Cent.	Deaths	Per Cent.		Deaths	Per Cent.	Deaths	Per Cent.
Box makers, wood	8	6	75.0	..	....	3	1	33.3	..	....
Finishers, furniture	11	6	54.5	..	....	10	2	20.0	3	30.0
Sanders, furniture	1	1	100.0	..	....	..	..	....	..	....
Polishers, pianos and organs	9	6	66.7	1	16.7	9	3	33.3	..	....
Carvers, wood	9	6	66.7	..	....	9	6	66.7	..	....
Finishers, wood	18	9	50.0	1	5.6	15	6	40.0	..	....
Turners, wood	14	8	57.1	..	....	9	4	44.4	..	....
Paper box makers	2	2	100.0	..	....	6	2	33.3	1	16.7
Cutters, paper mills	12	10	83.3	..	....	10	7	70.0	..	....
Paper makers	27	12	44.4	3	11.1	28	10	35.7	1	3.6
Rulers, paper mills	3	1	33.3	..	....	4	2	50.0	..	....
Spinners, cotton	35	23	65.7	2	5.7	20	12	60.0	2	10.0
Other hands, cotton mills	8	5	62.5	1	12.5	3	1	33.3	1	33.3
Knitting mill employees	30	10	33.3	1	3.3	15	3	20.0	3	20.0
Lace and embroidery workers	5	4	80.0	..	....	5	3	60.0	..	....
Rope and cordage workers	6	5	83.3	..	....	8	5	62.5	1	12.5
Cotton weavers	90	45	50.0	3	3.3	100	41	41.0	7	7.0
Box makers, N. S.	51	29	56.9	2	3.9	39	16	41.0	4	10.3
Total for group	339	188	55.5	14	4.1	293	124	42.3	23	7.8
Nondusty occupations	...	...	40.1	..	9.3	...	...	32.2	..	11.5

MORTALITY FROM DISEASES OF THE LUNGS IN OCCUPATIONS EXPOSING WORKMEN TO STREET OR MUNICIPAL DUST

Males, 1907-1912

Occupations	Ages 25-34					Ages 35-44				
	Deaths from All Causes	Tuberculosis of Lungs		Other Respiratory Diseases		Deaths from All Causes	Tuberculosis of Lungs		Other Respiratory Diseases	
		Deaths	Per Cent.	Deaths	Per Cent.		Deaths	Per Cent.	Deaths	Per Cent.
Street cleaners	8	...	....	2	25.0	28	8	28.6	2	7.1
Livery drivers, coachmen	83	40	48.2	8	9.6	104	37	35.6	13	12.5
Chauffeurs	91	29	31.9	11	12.1	28	8	28.6	2	7.1
Draymen, teamsters	2,189	962	43.9	230	10.5	2,175	806	37.1	238	10.9
Conductors, street R. R.	213	100	46.9	14	6.6	129	31	24.0	9	7.0
Motormen, street R. R.	124	37	29.8	11	8.9	116	30	25.9	8	6.9
Total for group	2,708	1,168	43.1	276	10.2	2,580	920	35.7	272	10.5
Nondusty occupations	...	...	40.1	...	9.3	...	...	32.2	...	11.5

MORTALITY FROM DISEASES OF THE LUNGS IN OCCUPATIONS EXPOSING WORKMEN TO GENERAL ORGANIC DUST

Males, 1907-1912

Occupations	Ages 25-34					Ages 35-44				
	Deaths from All Causes	Tuberculosis of Lungs		Other Respiratory Diseases		Deaths from All Causes	Tuberculosis of Lungs		Other Respiratory Diseases	
		Deaths	Per Cent.	Deaths	Per Cent.		Deaths	Per Cent.	Deaths	Per Cent.
Bakers	115	50	43.5	14	12.2	182	54	29.7	28	15.4
Candy makers	23	11	47.8	2	8.7	17	5	29.4	2	11.8
Millers, flour mills	8	4	50.0	..	....	13	3	23.1	3	23.1
Harness makers	21	12	57.1	2	9.5	35	11	31.4	3	8.6
Belt and pocketbook makers	14	8	57.1	1	7.1	12	5	41.7	1	8.3
Leather cutters	76	40	52.6	4	5.3	49	22	44.9	7	14.3
Tanners	110	59	53.6	4	3.6	121	51	42.1	11	9.1
Glovemakers	4	2	50.0	..	....	3	...	....	..	....
Button makers	21	12	57.1	4	19.0	25	12	48.0	1	4.0
Tobacco workers	155	85	54.8	13	8.4	203	77	37.9	19	9.4
Shoemakers	149	80	53.7	11	7.4	173	69	39.9	24	13.9
Celluloid workers	3	1	33.3	..	....	4	2	50.0	..	....
Grain elevator employees and grain handlers	5	1	20.0	2	40.0	9	2	22.2	..	....
Total for group	704	365	51.8	57	8.1	846	313	37.0	99	11.7
Nondusty occupations	...	...	40.1	..	9.3	...	...	32.2	..	11.5

Chairman: I am sure we have been tremendously interested in what Dr. Crum has so ably told us. We, here in Pennsylvania, have enacted a Lead Poisoning Act which includes among its provisions a method for controlling all dust generators used in the manufacture of lead compounds. We furthermore have on our statute books a standard issued by the Industrial Board stating that every grinding wheel must be equipped with a proper device to take care of the dust at the point of operation.

For the textile industry, which is one of the largest industries in our commonwealth, a committee of experts is at this time, and has been for months past, working on a code and we hope in the very near future to be able to announce a textile code which will not only comprise within it the requirements for safeguarding machinery, but also will have some sanitary requirements embodied in it so that the dust, which is of very material moment, shall be taken care of absolutely at the point of operation, thereby protecting the health of the worker in this industry.

When I came here to Harrisburg to take charge of this division, I found in it Dr. Elizabeth B. Bricker, who will open the discussion on Dr. Crum's paper.

Dr. Bricker: Dr. Crum has so thoroughly covered this subject that there seems to be very little more to say. I should like to recall to your memories the changes as they occur in the respiratory system in these dusty trades. When the dust is inhaled, if it is very coarse, it strikes first the larynx and trachea, and a great deal of it is expelled by coughing. The finer dust, however, is carried on down through the bronchi and into the alveoli. It works its greatest harm by destroying the epithelial lining of the lungs. Following this there is formation of connective tissue. This naturally encroaches on the lumen of the bronchi and alveoli, and in that way diminishes the amount of air that can enter the lungs. In addition, this new connective tissue has a decreased blood supply, and this cuts off the nutrition of the lung itself. This naturally allows the tubercle bacillus or any other infective agent which may be carried in by the dust, to obtain a foothold on the lung.

The symptoms as they occur are, first, the cough, which is more or less severe, depending on the amount of dust that is inhaled. Then we have with this expectoration which may be tinged by the dust which causes the cough. Following these we have shortness of breath on slight exertion. We can readily see that this is caused by the diminished air supply to the lungs and the extra amount of work which the heart is thus called on to do. Accompanying this we often find asthmatic wheezing due to the emphysematous condition of the lungs. If we have tuberculosis engrafted on this fibrous condition, we have more rapid loss of flesh, with the high temperature of tuberculosis as found in other walks of life.

The chief remedy, as stated by Dr. Crum, is dust removal, and that is removal of dust at the point of its origin. I might say that dry sweeping should be entirely prohibited and in its place should be substituted vacuum cleaning or wet sweeping. A very important means of eliminating the bad effects of dust is periodic physical examination of the workers in all employments, but especially in those in which dust is a marked factor. And last, but not least, we have personal hygiene. The worker must be instructed in the hygiene of his body, especially with respect to proper and frequent bathing, and also the proper care of his home in order to procure clean and wholesome living conditions.

When these three things have been accomplished, I think we shall have gone very far toward reducing the mortality from lung diseases in the dusty trades of America.

Chairman: I want to say that we here in Pennsylvania have under preparation a sanitary code. This sanitary code we want to make by your aid and cooperation absolutely the last word as regards efficiency of any sanitary code of any state in the Union, and I expect to have the pleasure of sending to every one of you ladies and gentlemen a copy of this proposed sanitary code and I ask you to cooperate with me in my work and with the department in constructive criticism.

Copies of this code will be mailed to you and we want you personally to criticise it and make suggestions and help us to give the state of Pennsylvania a sanitary code which will be a model for every state in the Union to follow. I know we can do it if you will give us this help and cooperation.

Dr. J. W. Schereschewsky, Pittsburgh: I do not think that we ought to leave the subject of mortality in the dusty trades without looking at certain other factors in connection with those trades which probably have an influence on this mortality. It is obvious, of course, that some dusts are more injurious than others because of poisons or of their physical characteristics. On the other hand in that connection there are conditions which may have the effect of causing a certain dust which is relatively innocuous, to have a greater effect on the worker engaged in that trade than a dust physically more injurious in some other trade. I think we ought to subscribe to the belief that all dust inhalation is injurious, that excessive inhalation of dust assists in removing or destroying the defense of the body against tubercular diseases.

I might mention briefly one or two factors which would have the effect of making a relatively innocuous dust more injurious to the worker engaged in that trade. For instance Dr. Crum told us that vegetable dust is not so injurious as other dusts. We find among garment workers a very high rate of tuberculosis. It seems to me that one factor in the incidence of this disease among these workers is their posture, which has the effect of greatly diminishing the expansion of the lungs and of generally inducing a condition of poor nutrition from suboxidation, and also a presumable lack of resistance to diseases of all kinds. We find, in an occupation like that, that the removal of dust is important because the occupation renders the worker more susceptible to disease.

Then take the case of the buffer and grinder; the man who does nothing but that. In addition to the fact that he has the injurious dust to contend with we must keep in mind that in grinding he presses the object against his body. This pressure diminishes respiration and causes a lessened resistance of the lungs to the inroads of disease.

Again in noting the effects of dust, we ought to consider what its effects are on the respiratory tract; I refer to the membranes of the nose and throat, because these are very important protective mucous membranes. If the effect of the dust is such as to injure the mucous membrane of the nose and throat and to produce rhinitis, high grades of which lead in turn to mouth breathing, it is evident that the worker under such circumstances takes into his system a larger amount of dust than if his nasal passages were free and competent. It is evident, therefore, that it is a question which involves the consideration of a large number of different factors.

I think, however, that we will not go far wrong if we base all of our estimates on the single conception that all dust inhalation is injurious, and that it is our duty to see that every dust producing process is so safeguarded that the worker will be effectually prevented from inhaling the dust generated thereby.

Chairman: To those of you who live in the state of New York it is very unnecessary for me to introduce the man who will continue the discussion on this paper, but to those here in Pennsylvania who may not have had the pleasure of meeting and knowing him, as I have for the ten or fifteen years of my life as an industrial physician, it is my privilege and pleasure to introduce the man who presides over the Division of Industrial Hygiene of that great industrial state, New York. He does it competently and ably, and we will all be glad to hear Dr. C. T. Graham-Rogers of New York State.

Dr. Graham-Rogers: The subject of dust in industries is one that New York State has been vitally interested in and that I, myself, have been very much interested in. I did not come to this conference prepared to enter into the discussions. I came here more to sit and listen. I will say, however, that in New York State, before industrial hygiene was given any consideration, and before the days that it was recognized that science should be used in inspecting factories, dust was recognized as a most injurious factor, and steps were taken to remove it.

We have studied the dust question probably more than any other question. We have tried to determine where the greatest point of danger is, and what that point is and how to eliminate that danger. That caused the introduction of the law concerning exhaust systems.

They tried to tell us that wet grinding was not harmful; that it kept down the dust. This is true so far as the wheel itself is concerned. If you will drop water on the wheel when you grind, there is a certain driving off of that water which immediately spatters the fine material and it becomes dry dust. Our experiments with dust have shown that this fine material is thrown around and becomes dry immediately after it gets away from the wheel. So we have said in New York State that we will order exhaust systems on wet grinding wheels.

A particularly interesting point that I have followed out is the question of statistics. I took up some of the health department reports on tuberculosis. In that case the statistics did not prove that the steel trades run very high in tuberculosis, but did prove that the tuberculosis rate was greatly in excess in a small country town on Long Island which was noted as a summer resort. In this instance the mortality figures were absolutely of no use to us, and it proved the necessity of having mortality and morbidity statistics.

Some of the industries are not considered dusty, but there is no industry but what has a certain amount of dust connected with it. There is no doubt that the vital resistance of the body has a great deal to do with the susceptibility to disease. You must keep the individual at par. It does not make any difference whether it is organic dust or inorganic dust; the individual is going to be susceptible to tuberculosis if he is exposed to it. The only way to prevent him from being susceptible is to remove the dust at the point of origin. That is nothing more than has been stated by the British authorities for years. Dr. Oliver, who is considered one of the best authorities on occupational diseases, states that from the beginning, and what we want now is to provide a practical means for removing that dust at the point of origin. I myself have felt some of the effects of dust in the arsenic industry, and both the chemical engineer of the department and myself know what it is to suffer from the inhalation of Paris green.

Certain masks are recommended to be effective, but you must have a mask that is not going to set up an irritation. If possible, the best thing to do is to provide some means of enclosing the hopper, if it is a barrel filler, by having a cover on the barrel, remembering that you must have an air vent in that cover. In filling a barrel there is a certain amount of air displaced, and you must take care of that air. Simply to shoot the dust in will throw a lot of dust up through the cover. The air vent should lead back into your hopper or into the dust reservoir.

The woodworking industry is an industry in which the dust is dangerous. It may not seem so, but we find that the workers often suffer from serious bronchitis. This tends to increase any other respiratory troubles which may exist. I cannot say anything further except to emphasize the fact that all trades in which there are dusts should have means for removing these dusts at the point of origin. They should be means that work for the good of the employer and the employee.

Dr. H. E. Mock, Chicago: There is one occupation that has not been considered and that is the work of the packers. Several years ago I had occasion to investigate tuberculosis among the packers in the department stores and the mail order houses. In those industries that have small articles to pack they use paper a great deal, as you know. The first year, seven years ago, I found twenty-two packers with tuberculosis. It was really an accidental finding. Upon examination of an employee for a small injury I found him in an advanced stage of the disease, and when we found so many packers suffering from this disease, I looked into the question of why they should get it.

I found the paper in the various departments to which large packages were shipped was taken off these packages and used to pack around the articles that were shipped away. On further investigation I found that this was an ideal condition compared with the method used in so many department stores and wholesale houses; namely, to buy up the paper picked up in the alleys or from rag pickers. I found that this paper was cut up into strips and sold to these various department stores and wholesale houses. I think right there was one of the secrets of why tuberculosis was so prevalent among packers.

Our industry immediately bought a large tract of land and started an excellent plant for manufacturing excelsior. In the last six years we have found only ten cases of tuberculosis against twenty-two the first year that I did this work.

The home conditions were mentioned by one of the speakers in his discussion and I think that the people of this class usually have very bad home conditions. The things that were stated in the previous paper must play a very large part in working up the statistics of mortality from tuberculosis among dust workers, and the thing that pleased me most was the mention of the examination of the employees as the one thing that must go hand in hand with this work of reducing mortality from tuberculosis in dusty occupations. There is no question that the examination of the employee is the best means at hand, plus the elimination of dust, to reduce the mortality of industrial workers.

I have just come back from Washington where this question was thoroughly discussed and I still have the figures pretty well in mind. During the last six years, in the examination of 35,000 employees we have found 499 cases of tuberculosis; seven of these were during the last two years, during which period several of them were applicants for work. During these six years the concern of which I am medical director took care of 284 of these cases of tuberculosis; 123 are now back at work, fifty right at the plant, fifty at work outside, and the remainder at work elsewhere. There have been only twenty-two deaths from among that number. An interesting thing is that twelve of these cases occurred the first year of the work, seven years ago. There have been only ten deaths since then. I believe the finding of these cases while in the earlier stages accounts for these figures. Again I want to repeat that along with our fight against tuberculosis, we must introduce into every industry the examination of employees.

Chairman: If there is any one problem which the medical profession has to face it is the problem of restoring to activity those who are overcome by gas or fumes, or are in any condition that prevents breathing. This subject was discussed at our last conference and it seems to be the opinion of those who attended that conference that more light would be thrown on the subject if we could have the advantage of having the three best known methods of resuscitation demonstrated before the present meeting.

I shall first call on and express my appreciation to the Westinghouse Electric and Manufacturing Company for their kindness in sending their first aid man who will demonstrate the prone pressure method, which is used in that plant.

Mr. F. S. Peterkin, Wilkinsburg: We have been very successful with the prone pressure method, and we have had cases receiving a voltage varying from 500 to 50,000 volts. Most of our men as a rule receive very severe shocks.

The prone pressure method, as we use it and understand it, seems to us the one method. Personally, I have had seven cases and out of the seven cases we lost only one man; that man, I understand, had a high blood pressure, and that is probably the reason why we did not bring him to. The other six cases were very severe, and varied in the time required to restore them from five minutes after the accident to as long as forty minutes.

It is very peculiar that the man receiving the lowest voltage, 500 d. c., was the man we lost. I got across his back and we worked on that man three hours and twenty minutes, Dr. Lauffer and myself, but our efforts were in vain.

Demonstration by Mr. Peterkin and Dr. C. A. Lauffer.

A. J. Mevny, Pittsburgh, Draeger Oxygen Demonstrator: Mr. Chairman and Gentlemen: I did not know exactly what was to take place so I have not prepared anything in the line of any special talk. I am very much pleased to give you a demonstration of the pulmotor. This machine, as you all know, is made for the purpose of performing artificial respiration. There are a great many cases wherein that is the only possible chance we have for saving life, in fact, such cases are almost too numerous to mention.

There are two general methods of performing artificial respiration: One which we know as the manual method and the other we know as the mechanical method. This machine was the first machine of the kind to be put on the market and to give successful results. There are now a number of other machines on the market.

In all cases wherein resort to artificial respiration must be had, success depends on two things. The exchange of air in the lungs must be of sufficient quantity, and the correct number of respirations per minute according to the size of the lungs must be created. In all of these cases there must be quick action, and no matter if there is a machine at hand or not, some one should at once start some form of artificial respiration.

I think it is the belief of the majority of people that the mechanical method will get better results than any manual method. The machines are set to supply the proper amount of air per minute and to create the correct number of respirations per minute and always at the same pressure and vacuum. This machine is automatic in its action and it is not necessary for the person operating it to know anything in particular about artificial respiration. It is due to its automatic action that this machine has been so successful. It is easily applied by anybody without any knowledge of artificial respiration. By having a machine that is practically foolproof they cannot do any injury to the lungs. There are over 4,000 of these machines in use, and there has never been one case wherein it has caused an injury in any shape or form.

In order to apply the machine, lay the patient on his back, place something under his shoulders to throw the head well back, open the mouth and pull the tongue well forward, for in all cases in which natural respiration is stopped, the tongue drops back into the throat.

The pulmotor was then demonstrated by the representative of the Draeger Oxygen Company.

Dr. S. N. Fowler, New York, of the Life Saving Devices Company: A mechanical device for inducing respiration is in every case superior to manual methods for several reasons, among which is the fact that by the manual method you can get only about one third as much air into the lungs as you can by mechanical devices. It is also impossible to apply the same pressure each time with the manual method. My experience has shown, and I believe anybody else who has done the same kind of work will agree with me, that the first aid men are often unable to introduce any air into the lungs at all with the manual method. The only test of that particular thing is to attach a spirometer and thus measure the exchange of air in the lungs.

Demonstration of the lungmotor by the demonstrator for the Life Saving Devices Company.

The session adjourned at 12:45 p. m. to meet at 2 p. m.

AFTERNOON SESSION

The meeting was called to order by the chairman at 2 p. m.

Chairman: Reference was made here this morning to an action by the Conference Board of Physicians. I wish to call attention to the fact that the Conference Board of Physicians is absolutely distinct from this meeting.

I am in receipt of two letters in which objection has been made by the writers of those letters to my calling this a conference of physicians. It is the first time that I ever knew that anybody had a copyright on the word "conference." I do not want to tread on their province, but I do not know what else to call it but a conference. What this is, is a getting together of the various doctors who are interested in this subject so that they may come here four times a year and help the state of Pennsylvania to solve its problems, and if anybody will suggest a better name than conference, I will be the first one to be ready and willing to adopt it.

We have throughout this great United States a tremendous interest on the part of the many manufacturing corporations in the health of those who labor for their daily bread. The manufacturer, if he is wise and wholly alive to his own interest, has begun to realize that one of the best things he can do, in order to get his employees up to 100 per cent. efficiency, is to have in his midst a guide and a friend. And as that guide and friend, the trained physician has begun to assume his rightful place within the industry. For some years past it has seemed wise to some of us who have been connected with the industrial corporations that we should form a national association of physicians who would meet once a year, either in connection with the meeting of the American Medical Association or in connection with the meeting of the National Safety Council, so that the doctors might get together once a year and read papers and try to solve their mutual problems.

It is my pleasure to introduce to you a man who has been a pioneer in this work of welfare. He started some years ago with the Sears, Roebuck and Company, the largest mail order house in the world, and his work has merited fame. It is my pleasure to introduce to you Dr. Harry E. Mock, who will briefly outline to you our purpose in forming a national association and will extend to you all a cordial invitation to become associated with it.

Dr. Harry E. Mock, Chicago: This movement as Dr. Patterson has so well pointed out, industrial medicine and surgery, has started only within the last eight or nine years. Few physicians engaged in the work previous to that time, and only in the last few years has it become recognized as an essential part of the industrial world. During the last two or three years the movement has spread like wildfire over the country.

In 1910 very few men were doing this work on a large scale. In the National Safety Council they have organized a section on Industrial Hygiene, and in the American Public Health Association they have a very good section on Industrial Hygiene which was formed the year previous to the National Safety Council. In the section of the American Medical Association on Preventive Medicine, one year ago they gave a symposium on "Industrial Hygiene." This year they intend to repeat that. In other words, several prominent organizations have recognized the great value of our work and have been far-sighted enough to form sections to get these men together to exchange ideas on this subject, and then to go home and put them into actual practice. This has been one of the means at hand to stimulate this work.

It dawned on a few of us about two years ago that we should have an organization among ourselves where we can thresh out problems that must naturally arise in our work and where we can boost industrial medicine and surgery from an educational standpoint. To me it is a medicosociological movement and those of us who recognize this feel that by grouping ourselves together we can teach the managements of the various industries the need and the value of the work among the employees. Not only is it the purpose to teach the managements of these industries, but we are also to teach the public, and I believe that such a movement would include some two hundred or three hundred men as a nucleus in this country for the instituting of health insurance, old age insurance, unemployment insurance and all the industrial laws that must go along with this industrial health work. That is one of the primary works of our organization.

Some two or three years ago a Conference of Industrial Physicians in the Middle West, which had practically the same motives for its organization as the national movement has, were considering a national organization of industrial physicians, and got in touch with the men in the East who are engaged in industrial medicine, and from these a committee of fourteen was chosen to act as an Organization Committee. The men on this committee, as I can remember, are: Dr. Patterson, Dr. Clark of the Norton Co.; Dr. Clark of the Crane Co.; Dr. Shelby, Dr. McCurdy, Dr. Corwin, Dr. Parker, Dr. Geier, Dr. Harvey, Dr. Post, and myself.

This Organization Committee has formulated a plan which we intend to present to a group of industrial physicians and surgeons on Monday, June 12, at Detroit. Monday, June 12, is the day before the official opening of the American Medical Association, and this association has told us that they would give us official recognition. The Cadillac Hotel at Detroit was chosen as our headquarters, so at that time and place there will be a meeting at which we hope to launch this newest organization, which has been given the provisional name of the American Association of Industrial Physicians and Surgeons, the aim of which is the boosting of industrial medicine and surgery.

In the morning there will be one official paper and in the afternoon three. The provisional program, as it now stands, has papers by Dr. Schereschewsky, Dr. Farnum, Dr. John Andrews and Dr. Merritt of the Ford Company, who will give us a very interesting outline of the system in force there. We will also have a better opportunity than anybody else of visiting the Ford Medical Department.

The charter for this new organization has been obtained under the laws of the state of Illinois. The provisional constitution will be adopted at this meeting and every man engaged in industrial medicine and surgery, anywhere in the country, will have the privilege of joining at this meeting as a charter member.

We will have a banquet in the evening and have reserved 150 plates, but Dr. Patterson tells me that that is only half enough. If there are no more present than are here at this meeting, I believe this organization will be one of the leading medical organizations of this country.

Chairman: I am sure with Dr. Mock that this organization is bound to prosper and to succeed because it will have as a reason for its being the absolute determination on the part of its members that this present industrial slaughter has got to stop, and while we may not be heaven sent and commissioned to do it, we can do our part. If all of us will get together and put our shoulders to the wheel, I am sure that we can do a part in making life happier. sweeter and better for those who must toil for their daily bread.

It is my pleasure to introduce to those of you present who have not had the pleasure of meeting him, a man who has stood in the forefront of the fight for better industrial conditions in this commonwealth, a man who holds an honored position in our state medical society and fills it with competency. It becomes my pleasure to introduce to you Dr. John B. Lowman, the efficient chief surgeon of the Cambria Steel Company, who will speak to us on one of the most important topics of the day.

VALUE OF PHYSICAL EXAMINATION AS A FACTOR IN THE PREVENTION OF INDUSTRIAL INJURY

JOHN B. LOWMAN, M.D.
JOHNSTOWN

The rapid growth of industries in America during the past century, with improved machinery to increase the output at all hazards, was so great that the human being as an asset was not considered in the cost and efficiency of production. It was not until certain laws were enacted for the protection of the laboring man that the industries commenced to see what an important asset the strong and healthy man was if kept in good, efficient running order.

Thirty years ago, before any laws of importance on this subject were enacted, the Cambria Steel Company built a hospital for the care of their injured. They saw after a few years what a paying investment it was, not only from a humanitarian point of view, but through remuneration as well. We saw that by system, by keeping the men under one roof and by proper care, there were less infections and cripples, thereby decreasing the average loss of time. The infections in 1916 averaged one fifth of 1 per cent. in the treatment of about 15,000 injured. Believing in the careful care of the injured, the hospital increased in size and efficiency, demonstrating beyond a doubt what a first-class, perfect working engine was, compared to the secondhand, defective engine which must always be kept in repair.

Believing that many employees were working at jobs for which they were physically unfit while others were working at jobs much below their ability, we started to make physical examinations of all employees. The examination covered about 12,000 men at Cambria Steel Company and about 2,400 at Lorain Steel Company up to date. Anticipating the length of time it would take for the examination of from 12,000 to 20,000 men, the old employees were not so strictly examined as the new men. The idea of examining the old employees was not to discharge any, but if possible to place them in positions which they were physically fitted for, advising those who were not well as to the care of their health and the eradication of their troubles as far as possible.

The examination consisted of: Name, age, nationality, weight, height, family history, children under and over 16 years of age, general appearance, condition of mouth, eyes, hearing, heart action, pulse rate, temperature, auscultation and percussion right and left lung, abdominal organs, vaccination, deformity of bones and joints, physical and mental defects use of intoxicants, urinary analysis, and rating.

If any suspicion of kidney, lung or heart disease was found, the urine, sputum and blood were examined and the blood pressure taken.

In the new employees the examination is much more rigid than in the old. The physician is kept busy from 9 a. m. until 5 p. m. on the examinations, care being taken not to examine a man after he has finished a hard day's work. The cases are then rated; that is, No. 1 is a first-class risk and good for any department; No. 2, fair and good for all departments except No. 1; No. 3, medium and good for all departments except those of Nos. 1 and 2; and No. 4 rejected. Special rooms are required for the convenience of the men. They are stripped and given a thorough examination in private. At first there was some objection by the men and some refused to be examined, but when told that no one was to be discharged and of the good derived from the same, not only for their own protection but also for the protection of others, they fell right into line and at present we have no trouble whatsoever. In fact, we have had some come back months afterwards for reexamination to see if they were still in good condition.

Time will not allow me to go into detail, but many interesting points are brought out by these examinations. I am indebted to Dr. Shilling, the chief examiner, for the compiling of the statistics as given.

The first series of 12,302 men examined shows:

Old employees examined	5,507	
New applicants examined	6,795	
Total	12,302	
Average weight	139.9	pounds
Average height	5.3	feet
Average age	28.5	years

Eyes:

Loss of one eye	27	
Blindness (one eye)	21	
Cataracts	19	
Minor defective	987	8 per cent.
Major defective	264	2 per cent.
	1,318	10 per cent.

Ear:

Minor defective	589	5 per cent.
Major defective	142	1 per cent.
	731	6 per cent.

Mouth:

Decayed teeth	1,818	14 per cent.

Deformities:

Arm	7	
Fingers	127	
Hand	5	
Legs	19	
Flat feet	637	
Hallux valgus	274	
Hammer toes	65	
Scoliosis	79	
	1,213	10 per cent.

Amputations:

Arm	7	
Hand	4	
Fingers	84	
Legs	25	
Foot	13	
Toes	52	
	185	1.5 per cent.
Varicose veins	344	3 per cent.

Chest:

Heart disease	123	1 per cent.
Lung disease	35	.02 per cent.

Abdomen:

Hernias	262	2 per cent.
Open canals	1,745	14 per cent.

Miscellaneous:

Active venereal diseases	11
Impaired mobility joints	84
Goiter	31
Undescended testicles	11

Hernia	Right	Left	Double
Old employees	87	79	15
New applicants	40	33	8
Open canals	439	367	939

The second series of 2,430 men examined shows (Lorain Steel):

Old employees examined	1,166	
New applicants	1,264	
Total	2,430	
Average weight	148	pounds
Average height	5	feet 6½ inches
Average age	30.07	years

Eyes:

Loss of one eye	10	
Blindness (one eye)	11	
Cataracts	3	
Minor defective	1,230	50.61 per cent.
Major defective	252	10.38 per cent.
Total	1,506	61.97 per cent.

Ear:

Minor defective	301	12.39 per cent.
Major defective	124	5.12 per cent.
Total	425	17.49 per cent.

Mouth:

Decayed teeth	1,290	53.08 per cent.

Deformities:

Fingers	53	
Flat feet	455	
Hallux valgus	65	
Spinal curvature	69	
Total	642	26.42 per cent.

Amputations:

Arm	2	
Fingers	28	
Legs	3	
Toes	2	
Total	35	1.02 per cent.
Varicose veins	121	4.98 per cent.

Chest:

Heart disease	113	4.65 per cent.
Lung disease	59	2.43 per cent.
Total	172	

Abdomen:

Hernias	174	7.16 per cent.
Open canals	310	1.27 per cent.
Total	484	

Miscellaneous:

Active venereal disease	1
Impaired mobility of joints	30
Goiter	94
Total	125

In the examination of 425 men from January 1 to April 14 the blood pressure, taken by Dr. Hay at the Lorain Steel Company, showed

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that 330 of the old employees averaged systolic, 135 mm.; diastolic 94.2 mm.; pulse pressure 40.8 mm.; and average age 35.32 years, while of the 95 rejected cases the average systolic was 146.7 mm.; diastolic 101.8 mm.; and pulse pressure 44.9 mm.; and average age 28.54 years.

What is the value of the physical examination of the employed from the above statistics?

First: We found many major and minor defectives. There were those with poor vision, wearing glasses with no correction of vision whatever, usually refracted by the so-called "store refractionist." Some of these were doing fine work. Where the vision could be corrected with glasses, they were sent to a competent ophthalmologist and the vision corrected if possible. (I am not speaking particularly of skilled labor.) The striking feature was the marked expressions of gratitude from some of the men who had suffered with headache for years. They remarked how much better they felt and how much more work they could do. Where the vision could not be corrected and they were working in dangerous positions they were transferred to positions less dangerous, not only protecting themselves, but others around them. Men with one eye were also taken care of.

Second: The subject of hearing brought out many interesting points, and the advantage of examination. Many causes of defective hearing were due to impacted wax and catarrhal conditions; these men when properly treated resumed their original positions. In the case of boiler makers and riveters we found many with the percentage of hearing much below normal. Some of these declared that while at home or on the street they could not hear nearly so well as when at work. On investigation we found that the noise of the machinery and the riveters made them all talk louder to one another than normally.

Third: Decayed teeth among the laboring men is a matter that is hard to handle. It will require more education than at present, and if handled properly I believe will remove much of the myalgia and rheumatic conditions complained of by the workingman. We discovered quite a few of these, and on the advice of the examining physician their teeth and mouths were taken care of with much marked improvement. The question of oral sepsis is a much more important one from the standpoint of the health of the men than it is usually considered.

Fourth: Deformities, congenital and acquired, were treated. By the proper operative procedure and mechanical appliances we have been able to increase the efficiency of these men as wage earners.

Fifth: The subject of varicose veins and leg ulcers is one that is hard to handle. One sees many of these old leg ulcers—filthy, dirty, and of long standing. Just what to do with them is an important question.

Sixth: In lung diseases where incipient and advanced cases of tuberculosis were found, they were not all discharged from work, but were sent to the dispensaries for treatment of the same and kept from contaminating their fellow workmen.

Seventh: Many cases of heart disease were found. Many of these men were working at a height, such as cranemen and riggers. They were given easier jobs.

Eighth: Epileptics, of course, are only discovered by their having a convulsion while at work. They are not only liable to fall and kill themselves, but others as well. These poor unfortunates are not allowed to work at all. We found one man who was working as a craneman. He was taken with a seizure while at work but fortunately the crane was not running. This man not only stood liable to kill himself, but others below.

Ninth: In the cases of active venereal diseases when found, the men were discharged without argument, on the ground of being a nuisance to others, but when given a clean bill of health were again employed.

Tenth: The question of hernia is one for argument. All men below the age of 45 were requested to have an operation or a properly fitted truss. If they claimed injury at any time, they were given the benefit of the doubt and operated on at the company's expense. Personally I doubt if 3 per cent. of these cases could be traced originally to an accident. All open canals, where a strong impulse or a slight bulging on coughing is produced, should be classified with hernias and treated as such. It has been demonstrated that these conditions are more apt to cause trouble than those in which men know that they have a hernia.

The examination of the new employees is much more strict than that of the old, and all those physically unfit are rejected. The demand for labor, however, has been so great that we have let down the bars to a certain extent, and have kept a classified list of these men and employed them in departments according to their rating.

In conclusion, the advantages of the physical examination of the employed are:

First: Safety first and prevention of accidents. The number of preventable accidents will decrease as the physical standard is increased.

Second: The importance to the employer of knowing the condition of his men.

Third: That suitable employment is found for those unfortunate enough to have physical defects which debar them from their normal vocations.

Fourth: The rejection of the unfit, but not without free medical consultation, and recommendation for their regeneration.

Fifth: Economic value to the company because of the greater freedom from falsified claims and freedom from indemnities and compensation required in accidents due to impaired vision, hearing and other disabilities of the workingman, who injures himself as well as his fellow workman.

As a result of these examinations the following suggestions present themselves:

First: That it is of vast importance to the employers to know the condition of their employees' health and physical defects.

Second: That, wherever possible, those who are unfortunate enough to possess any gross physical defects that will debar them from their regular vocation be given suitable employment to fit their cases.

Third: That all open canals, especially those where a strong impulse or a slight bulging is produced, should be classified with hernias, and treated as such, as it has been demonstrated that this condition is more apt to cause trouble than those in which men know that they have a hernia.

Fourth: That the employers should realize that in conducting these examinations it is for their interest as well as that of the employees that this department is being conducted.

Fifth: That the number of preventable accidents will decrease as the physical standard is increased.

Chairman: I am sure there is no subject of industrial methods today that is more alive than the one presented to us by Dr. Lowman, and we are fortunate in having to open the discussion on this subject Dr. John W. Luther, Palmerton, who has done a remarkable work in the plants of the New Jersey Zinc Company.

Dr. Luther: I regret that I do not have more of a message to bring you today. When Dr. Patterson asked me to open the discussion on this paper, I thought it would be an easy subject to discuss, but I find it more difficult than I thought.

That a distinct relationship exists between physical examination and injury is obvious, but extremely difficult to prove statistically. A few moments thought will, I am sure, convince one that this relationship does exist. Physical defects can many times only be found by examination. A physically unwell man is mentally unwell and unable to concentrate. The man that cannot keep his mind on his work is unsafe in modern industry to himself and his fellow employees. A short time ago the head of one of our departments asked me to operate for varicocele. It was small but it annoyed him and he could not concentrate. How much worse is this or some of the more serious defects on the man doing hard physical work. Not only are they inefficient, but they become careless of their own and their co-workers' welfare.

Again, a man with a cardiac, renal, pulmonary or some other lesion, of which he may be unaware and which can only be detected by examination, unconsciously and instinctively protects himself against an injury to the weakened organ, and as the disease advances he naturally becomes careless and unsafe. It stands to reason, therefore, that to safeguard our employees these weaknesses must be found, removed if possible, and where this is not possible the men so afflicted must be placed in employment where they can do the least harm to themselves and others.

Again, it is only by examination that many lesions which may produce sudden and complete disability can be detected. A tubercular lung may suddenly bleed, especially after undue exertion, a hernia may be suddenly strangulated, a cerebral vessel may suddenly rupture if the vessels are hard and the blood pressure high, a nephritic may suddenly become uremic, and when these things occur the man drops regardless of where or when. Can it be disputed then that the discovery of these lesions and their removal in one way or another will reduce industrial accidents?

When we first started this work, one of our locomotive engineers was found to have an hypertrophied heart with beginning dilatation, a mitral and aortic lesion, arteriosclerosis, chronic interstitial nephritis, one half normal hearing, one fourth normal vision, and he was color blind. He was on the passenger service carrying men to and from work. Three weeks after his transfer to the position of hostler in the round house, while working in the cab of a locomotive he had an attack of vertigo and fell from the cab to the floor. He had not known of his condition. Had we not discovered it this attack might have occurred on a run and hundreds of lives been imperiled. This case alone should be sufficient to convince anyone that examination will prevent accidents. Recently I wrote to Dr. Clark of the Norton Company, Worcester, Mass., who is a pioneer in this work, asking him for facts and figures. His reply is interesting and I shall read it.

"I have been giving your letter of May 8 considerable thought, which is the reason for my delay in answering it.

"Of course there is no question as to the relationship existing between injury and physical examination, but it is extremely difficult to give any statistics or figures. The most definite one which I have is this: Up to the first of December, 1915, we had no definite hernia disbarment in our examination of prospective employees provided the men wore trusses. However, shortly after that date we began to have a large number of men come in complaining of hernia. On looking over these men's cards I found that they had had third-degree hernia when they were examined, and on cross-questioning found that they had been advised to wear trusses and had worn them a certain length of time, but later discarded them on account of the inconvenience. Following this we made it a rule to admit only first- and second-degree herniae. Since that time we have not had a single case of hernia among the 2,600 men who have passed through our hands. Of course it is very early to judge. We may get a number of herniae out of this new batch, but there is certainly some significance in the figures.

"I think that our record of accidents shows pretty conclusively that the complete physical examination which we make has a tendency to keep men in good condition. Although we have a large number of accidents they are all minor, consisting of slight crushes and bruises, and I do not recollect a more serious accident than the amputation of a phalanx in the last year."

Our own statistics are of little value in proving the point. At the time this work was inaugurated, in May, 1914, we also started compelling every man injured, no matter how trivially, to report to a plant surgeon and he was not allowed to return to work without a written release from the surgeon. As a consequence the number of our accidents increased. Before this time an injury was classified as an accident regardless of disability. Since then they have been grouped as slight accidents having no disability or one of less than two days and accidents having a disability of more than two days. So comparison is impossible. There have been no cases of permanent, partial or total disability, and but one death.

A few figures might be of interest.
In 1913 our accidents numbered 992.
Accidents per 1,000 man days, 1.516.
Percentage of lost time, .415.
In 1914 our accidents numbered 1,047.
Per 1,000 man days, 1.497.
Percentage of lost time, .438.
In 1915 our accidents numbered 1,195.
Per 1,000 man days, .471.
Percentage of lost time, .309.

This shows a decrease in number and severity of accidents and in period of disability but how much of this decrease is due to the examinations cannot be determined.

The summary of the results of examinations at Palmerton is rather interesting. Of the men on the pay roll, 18.5 per cent. have a functional or organic heart lesion and 10 per cent. have some pulmonary lesion. Of these 5 are tubercular; rather a low percentage. Less than 1 per cent. had some defect of the eyes which interfered with their work. These defects have all been corrected or the men transferred to work not requiring acute eyesight. Only railroad men and clerks had an eye examination made. A trifle more than 2 per cent. have some physical defect, an amputated finger, stiff arm or leg or deformity from an old fracture, seven of these have only one eye. One per cent. were found to have some disease or abnormality of the genitourinary tract; this does not include varicocele, which was found to be so extensive as to be classified alone. I was much surprised and pleased to find only five cases of acute, active venereal disease. These men are now cured. No man is now employed who has an active venereal disease.

Ten per cent. were found to have a hernia. In addition to these, 209 have an enlarged ring and a decided weakness, showing a tendency toward the development of a hernia. A man with a hernia will no longer be employed unless he wears a truss or undergoes an operation. The latter is encouraged and provision has been made to do it for them at a very low cost to the man. Ten per cent. have varicose veins; but few of them are sufficiently severe to interfere with work. Elastic supports have been advised when this condition has been severe and a few men have been operated on. Twenty-four per cent. have varicocele, but this need not interfere with work, though the use of a suspensory bandage is encouraged. In a number of cases it also has been operated on. If the men afflicted with hernia, severe varicose veins, and varicocele could only be made to realize how much more comfortable they can be made and how much more efficient they would be after operation, I feel sure more of them would undergo it. One of our men, a Slav, had a bad hernia on the right side for years. After some persuasion we operated on him. About a year later he developed a hernia on the opposite side and without hesitation he came to us and asked to be operated on. Trusses, elastic stockings and supporters may relieve such troubles, but they are extremely uncomfortable things to wear.

Of the total 5,292 men examined, .07 per cent. had some eye defect; 2.5 per cent. had some genitourinary disorder; 1.5 per cent. had physical defects; 10 per cent. had hernia; 11 per cent. had a lung lesion, 34 being tubercular; 14 per cent. had varicose veins; 19 per cent. had heart disease; 22 per cent. had varicocele.

I have also divided the men into three groups: A, B, and C. Class A includes all men in whom no serious defect was found. Class B includes all men in whom some defect was found, but who were not sufficiently defective to interfere with employment. In some cases special work was designated for them. Class C includes all men in whom some serious defect was found, such as a severe heart lesion, lung lesion, hernia, bad varicose veins, venereal disease and physical defects, such as loss of one eye.

Of the present employees 13 per cent. are of Class C, 21 per cent. are of Class B, and 66 per cent. of Class A. This makes a total of 34 per cent. with some defect.

Of the present employees 18 per cent. are of Class C, 20 per cent. of Class B, and 62 per cent. were of Class A. This makes a total of 38 per cent. with some defect. With this large percentage of defectives among men who are supposed to be strong, healthy workingmen, I think the advisability of examining them and watching them from time to time is self-evident, and that by so doing and by properly caring for them the number of industrial accidents will be reduced to a minimum.

Dr. J. D. Milligan, Pittsburgh: I notice that the point that was raised by Dr. Lowman's paper, which was most eloquent and most interesting, corroborated that of the last speaker.

It so happened in the experience of the Lake Erie that there was made early in 1910 an examination, in which every employee was subjected to a rigid physical examination including the liver, lungs, and spleen, and specific diseases of whatever kind and nature. No man was employed who had a hernia or the suggestion of a hernia; he was rejected. That does not apply to telegraphers; we employ telegraphers even if they have lost a limb. I am speaking now of the road engineers and firemen. Everybody must comply with those requirements. The result is that we have looked up pretty carefully that grade of employees, but once in a while crops out a case where some unexpected thing happens. Some man who has had a specific disease in his early life afterward may be attacked with vertigo and be killed or he may sacrifice a train of passengers. Fortunately we have not had that happen to us lately. Such cases are very hard to detect, because men do not tell their life's history, neither will they always tell the truth.

Passing along we found another factor which was very hard to get around, and that was the question of alcoholism. No man is employed by the company, neither is he retained in the service of the company, who uses alcohol, but violations of this rule are sometimes difficult to detect.

There is another little point I want to speak of here that is of considerable interest. The topic is so plainly set out as the value of physical examination. Where does the value begin to be estimated in the end results? Your employees reach a time in life, where according to our method, by reason of their age, they become inefficient as far as sight is concerned or from some other physical defect that approaches most people above 65 years of age, when they become qualified by the general manager for pension and are honored employees as long as they live. Now the end result in the case is the efficiency of the man. If you have a sound physical man who is qualified to be a pensioner his family is provided for and he is a better employee and a safer man. When he is retired in his old age, he will be like a soldier who has never been found asleep at his post.

It is very well to take the railroad employees and put them through a physical examination before giving them employment.

There are men here representing the different coal companies, and I should like to hear from them and know what they are doing about the examination of the present employees and the examination of the men who are applicants for positions.

Dr. H. P. Horigan, Buffalo: I am not from the coal companies, but nobody is answering. Dr. Milligan's plan of treatment seemed to be severe, and a little different from plant treatment. We have been examining our men for a great many years. We have not rejected a great percentage. Of course we are a little different from the railroads. A plant that manufactures everything that you buy for your house has a larger field in which to place a man. We do not discharge for alcoholism, we correct it. We have found some estimable men develop out of these. We examine the men when they come to work, and we examine all of our old men. If they develop any bad conditions, we help to correct them. This method makes a good man by the correction of eye defects, removal of tonsils, correction of liver trouble, operation for hernias, operation for varicose veins, and proper correction of flat feet.

The correction of such defects that cause the taking up of strength is along the plan that we work on. Our findings have been about the same that Dr. Lowman and Dr. Luther have pointed out. Our follow-up work and our examinations have been of great service in finding tuberculosis in its incipiency and I think the doctors in industrial plants can be of great service to health departments and can be of great service to society, especially in the elimination of tuberculosis.

Dr. Van Derwart, Schenectady, N. Y.: I represent the General Electric Company, Schenectady, and this subject of physical examination is one which is interesting me. I was especially interested in the excellent paper by Dr. Lowman. The General Electric Company have made it a rule for the last two years to examine new employees. During that time, especially the last six months, we have examined about forty or fifty men every day, and when one man has to examine them during the afternoon, he cannot go into the finer points. There are certain things which you can find by quick examination. These few things the company has pointed out and corrected. For instance, if the man has bad vision the vision of both eyes must meet a certain test; if the man has tuberculosis he is rejected; if the man has the slightest kind of rupture he is rejected.

I think there is no question about the value of these examinations in preventing injury and in having the men do efficient work. It also has a value, as has been pointed out, that the individual recognizes that there are certain things that are wrong. We have had a great many men with eye defects who have come back to us after we had pointed out to them that their vision was bad and have said that life is more to them because their vision had been corrected

The point was brought out that some of the men do not like these examinations, that they are not willing to be examined. We have examined about 6,000 men during the last year, and among that number I can recall only about ten who have said anything at all about being examined. Each man was examined in a room by himself. We have six or eight rooms in which they undress and they are not brought into contact with any one except those who examine them.

Dr. J. B. Rogers, Pottsville: I notice that this paper is called the "Value of Physical Examination as a Factor in the Prevention of Industrial Injury." To my mind the physical examination of the worker is one of the most important factors with relation to the prevention of injury. It is very necessary that all persons have their vitality at par while at work in the shop. The burden of accidents has always been placed on the industry. The industry has always been blamed as the cause. What we should consider is not only the industry but the machine and the individual working at the machine. It may be that certain machines are safeguarded, but you cannot make the machine foolproof. When the individual is examined the medical examiner of the company knows what his physical condition is. If after the accident he reexamined that man he would find out whether there was a condition in which the individual was below par or whether the machine itself was at fault. If the individual himself is at par, there must be something wrong with the machine. If the guard is all right and the individual below par, that must also be considered. It is not proper to blame entirely the machine or the industry, when a man's physical condition has had something to do with it.

You must take into consideration, in studying the whole subject of industrial hygiene, the physical condition of the worker, and examine him not only once, but periodically if you are to have any reliable statistics or thorough success.

Dr. C. H. Pike, Philadelphia: I represent a large manufacturing concern and in this matter of prevention of accidents by physical examination you are obliged to go into welfare work. What are the surroundings of the individual at home? What is his physical condition? Does he get proper rest? Does he get proper food and is he working overtime? Until you get down to the fact that you must get the individual, not only from his physical standpoint, but from his living conditions also, you cannot get that perfect individual that you are striving to obtain.

In examining workmen it has been my fortune to find many a good man who is doing work which endangers himself and his fellow man because his home conditions are bad. Sometimes he has a sick wife, children or dependents of some kind that keep him back, and until you can go into that home and investigate from the very beginning you will not get what you are looking for. In order to make the industrial surgeon and physician a success, the best thing to do is to couple up their work with a very sane and well guarded welfare organization.

From the Floor: I came here simply as a spectator. I am not a physician, but represent the employer and the employee. We do not like physical examination any more than do the men we are forced to examine in order to protect ourselves against the men who are rejected by the railroads and others who reject men for physical imperfections. Apparently we get our share of them.

The value of physical examination is well illustrated in a case which we have in our plant at the present time. A man very recently came into my office and asked for compensation. This is of interest to those gentlemen here who represent Pennsylvania corporations under the Compensation Law, because you have recently taken on your shoulders a compensation law. This man came into my office and stated that he had a double hernia; he stated further, on questioning, that he had been so advised by a surgeon of high standing.

We have for some months examined our men at the time of employment and in the examination of this man the doctor had failed to find any indication of hernia. He was, therefore, sent back into the doctor's office and examined by two of our surgeons. They reported that there was still no indication of hernia. We then sent him to one of the most eminent men of the city without giving him any inkling of what the trouble was, and he reported that after a very complete examination he had been unable to detect the slightest indication of a hernia on either side.

A short time later this man was operated on for hernia by the eminent gentleman who stated that he had a double hernia. I was served with a notice that his case had been carried to the Industrial Commission and that we would be brought to bar to show cause why we should not pay compensation for a total, permanent disability. If that does not illustrate the value of a medical examination for the elimination of those who are imperfect and to save you and your company against such unscrupulous individuals, I do not know what you want as an illustration.

Dr. S. V. King, Pittsburgh: In the question of physical examination of workmen, there is another thing that I think should always be investigated. That is, the question of what lodges and orders the workmen belong to, which pay them a weekly compensation. An industrial accident is always longer healing than any other for the simple reason that the workman knows that the company for which he works is more or less liable. He belongs to lodges from which he receives for a stipulation of 10, 15 or 25 cents a week a certain compensation. These things should always be investigated. I find men who, when injured, receive more money than when they are working. I am not speaking against these companies, but the individual. That factor should always be remembered and always investigated when any workman is injured.

Dr. J. W. Schereschewsky, Pittsburgh: I do not think that we ought to pass this subject over without discussing a little further the question of those who are rejected on account of physical examination.

I am very glad that the speaker just before the previous one brought this subject up before the conference. It is very plain, however, that this practice of physical examination is becoming more and more extensive from month to month, and I think it is only proper that some consideration should be given to the fate of those who, because of physical disability, find themselves universally rejected.

It is very evident that the rejected ones are going to be continuously disbarred from employment because companies are beginning to find that when a man is rejected in one company he applies to another and that industry, in order to protect itself, introduces physical examination and he is rejected again. Now, while this process of selection results, of course, in a very much higher percentage of efficiency, still this continuous process of selection will give rise to a large class of persons who are still of such value to society that their energies could be serviceably utilized but are going to waste.

In a short time unless some measures are taken to provide for this subnormal class it is very evident that we are going to meet with a group of complications which will materially influence progress. It is very plain that there can be but one answer to this condition of affairs which is bound to arise and that is another argument for the very careful consideration of health and invalidity insurance.

At present physical examination seems to be a protective convenience to safeguard employers and also their workmen from the bad results of having too many inefficient employees who are below par. In the future when we have health insurance we will have an automatic mechanism for taking care of those persons who suffer in this way. They will be restored to their full productive activities in the shortest possible time, and the expense for doing this will be placed where it properly belongs, that is to say, on the whole of society. Those who can be only partially restored will be restored to that extent, and their loss in wages will be supplemented by the compensation provided for by the law. Those who are incapacitated will be taken care of also by the operation of such laws.

We see, therefore, that it will be to the interest of society when health insurance laws are enacted, to see that the percentage of accidents is reduced. That means that by the active cooperation of health authorities, educational authorities, and departments of labor and industry measures will be taken and the general public health conditions will be so improved that when the citizen enters his life work, he will reach that period with a body in good health. He will be surrounded by healthful conditions and the individual will be practically 15 or 20 per cent. more efficient on the average than he is today. The class of defective persons will automatically decrease and I think we will find then that this great problem which now confronts us will have been practically disposed of and the costs incident thereto will have been distributed where they belong.

Dr. Thomas Bishop, Harrisburg: It seems to me from what has been stated that it is well to divide the workers into two classes. Those who have worked and want to work, and are rejected, and those who may be able to work if they make application, but want to be supported without work.

Another point in the examination of workers is the protection, not only of the men who work, but also of their fellow men. It is to protect these two classes and not simply to protect the corporations that physical examinations are made.

There is one thing that has not been suggested at all. There are many men who are mentally and physically able to work but who have no adaptability whatever for the employment in which they are engaged. I knew men in the war who served in the cavalry throughout the four years and yet they were not able to ride a horse well, and the same thing applies to industry.

Dr. J. M. Maurer, Shamokin: I will briefly state that I think no class of corporations in this commonwealth are trying to carry out more liberally the provisions of the Pennsylvania Workmen's Compensation Act than are the coal mining corporations.

The examinations of old employees are made without one single motive of depriving them of an occupation. Where they are not fit for the occupation in which they are at present employed every effort is made to place them in suitable occupations which will lengthen their lives, lengthen their usefulness and distinctly be of an advantage to them while working. That is a humane service to the workman himself and is a proper measure, I assure you, in the prevention of industrial accidents. I can give you no more striking example than to cite two instances that have occurred within our experience.

A hoisting engineer at one of our mines was found to have a systolic blood pressure of 240 millimeters, and he was promptly given another occupation as unfit to be at the throttle of the hoisting engine with eight or ten of his fellow miners in the cage. This removal was made to the dissatisfaction of the man, but within thirty days this change was justified, as he was stricken with a cerebral hemorrhage which would have cost the life of every man in that cage.

A water tender, whose duty it was to see that a large nest of boilers was kept supplied with water, after many years of service, the defect being unnoticed, was found to have such defective vision as to be absolutely unable to see any water in any gauge in that nest of boilers. In other words, at any moment a disastrous explosion might have occurred thereby costing the lives of his unfortunate fellow workers. That in two brief instances is the value of physical examination of old employees in our service.

The question has been asked what the policy of the coal companies is in respect to the examination of new employees. I want to say that in the company I represent the same liberal policy exists. There are scarcely any rejections whatever, but every effort is made to provide suitable employment where the man becomes less of a hazard to himself, prolonging his usefulness.

May I add that the record of this physical examination answers the question of the gentleman to my right. The record of examination proves of value for reference in the future.

Chairman: With your permission we will now pass to the next subject on our program, and if you will turn to that much read document in these times, known as Act 338 of the Legislature of 1915 of the commonwealth of Pennsylvania, and otherwise called the Workmen's Compensation Act, you will find in the perusal of that act in Section 306, paragraph *e* the following clause: "During the first fourteen days after disability begins the employer shall furnish reasonable surgical, medical, and hospital services, medicines and supplies, as and when needed, unless the employee refuses to allow them to be furnished by the employer. The cost of such services, medicines, and supplies shall not exceed $25, unless a major surgical operation shall be necessary; in which case the cost shall not exceed $75."

I contend without fear of contradiction that the state of Pennsylvania is unique in two particulars. In the first place, we have on our statute books laws, which in their humanity challenge the administration of every other state in this Union, and in addition to that we are, what is after all the most important fact, fortunate in having those laws administered by men with broad judgment and great ability, and so it is my privilege to introduce to you this afternoon, and I guess some of us may have had the pleasure of taking his examinations, the able and competent president of the Bureau of Medical Education and Licensure of the state of Pennsylvania, Dr. John M. Baldy, who in his Solomon-like wisdom will interpret to us what this clause really means.

WHAT CONSTITUTES "REASONABLE" SURGICAL, MEDICAL AND HOSPITAL SERVICES UNDER COMPENSATION ACT

JOHN MONTGOMERY BALDY, M.D.
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The Pennsylvania Workmen's Compensation Act of 1915, No. 338, Article III, Section 306 (*e*), reads: "During the first fourteen days after disability begins the employer shall furnish reasonable surgical, medical and hospital services, medicines and supplies as and when needed, unless the employee refuses to allow them to be furnished by the employer."

The Bureau of Medical Education and Licensure at the request of the Bureau of Workmen's Compensation has outlined the following procedures as being in its opinion "reasonable" within the meaning of the act. A "reasonable" minimum service to an injured person would be at once to transfer the patient (the wounds having been untouched by any one): First, to an incorporated hospital; or second, to a physician licensed to practice medicine in the commonwealth of Pennsylvania; or third, to administer first aid at the place of injury.

First aid having been rendered at the place of injury the service would be "reasonable," provided the injured one be referred, in the case of slight injuries, first, to an incorporated hospital; or second, to a licensed physician; or third, to a central point especially equipped by the employer for the care of accident cases, to consist of not less than two rooms. In the case of severe injuries: First, to an incorporated hospital; or second, to a licensed physician.

By first aid at the place of injury it is to be understood that the service may be rendered by any one, but is to be limited as follows, except in the case of a licensed physician:

First, certain convenient points designated as "emergency stations" should be established throughout the works.

Second, these emergency stations should be equipped with definite emergency kits. (*a*) Package done up in wax paper, containing aseptic dressings and a bandage; or some safe and effective antiseptic, such, for example, as a small vial (one drachm) of a 3 per cent. solution of tincture of iodin (together with a camel-hair brush), and a bandage. (*b*) Splints and bandages. (*c*) Tourniquet.

Third, each emergency station should be placed in charge of some one definitely assigned and trained for this work.

In the case of wounds which involve breakage of the skin surface (and where the open wound is not too extensive) package "a" should be used as follows: First, tear open package, apply the aseptic dressing or draw the cork of the vial and apply the iodin by means of the brush thoroughly in the wound and over the surrounding skin; second, then at once (without any further handling whatever) apply the bandage.

In the case of extensive or very severe injuries, suspected *fractures or dislocations:* First, lay the injured person down in the most comfortable position; second, notify the proper official.

In the case of injuries involving a great loss of blood: First, apply the tourniquet between the wound and the body of the injured person; second, notify the proper official.

In reference to *"a central point especially equipped by the employer for the care of accident cases"* it is understood that this is to consist of two or more rooms conveniently located and suitably equipped and officered as an operating dispensary. As to equipment of such a dispensary the following would be a "reasonable" outfit:

It is suggested that this equipment be maintained.

List of requirements for emergency operating rooms in industrial plants:

1	White enameled bed screen with muslin panels.
1	Sterilizing outfit for water and instruments on white enameled stand with closet.
1	Stethoscope.
1	Nasal speculum.
10	Boxes tongue blades with two metal handles.
1	Blood pressure apparatus.
1	Complete urinary analysis outfit in case.
1	Nickel-plated double folding gas bracket with large size light condenser.
1	Five-foot metal tape measure in metal case.
1	Knee jerk hammer.
1	Percussor and pleximeter.
½	Dozen pairs surgeon's rubber gloves.
1	Soft rubber stomach tube.
6	Hot water bottles.
2	Dozen tubes assorted ligatures.
15	Feet splint wood, assorted sizes.
12	Galvanized wire emergency splints.
1	Support, white enameled, to support leg while bandaging.
1	Dozen lipped beakers, 350 c.c.
3	Boxes wood applicators.
6	Assorted metal applicators.
2	Operating gowns.
2	Operating caps.
1	White enameled instrument and dressing cabinet.
1	White table with rail.
2	White enameled patient's chairs.
1	White enameled operating stool.
1	White enameled examining and operating table with cushion.
1	Floor waste basket, white enameled.
1	Rubber blanket.
1	United States Army stretcher.
2	White enameled pus basins, assorted sizes.
1	Dozen assorted surgical needles.
1	Needle holder.
2	Scalpels.
1	Straight bistoury.
1	Curved bistoury.
1	United States Army rubber tourniquet.
1	Bandage shears.
3	Surgical scissors.
2	Silver plated probes.
1	Grooved director.
2	Foreign body eye spuds, one sharp and one dull.
½	Dozen hemostatic forceps.
1	Splinter forceps.
1	Glass wound syringe.
2	White enameled instrument trays.
1	White enameled measure, 1 quart.
½	Dozen glass jars for dressings, 6 by 6 inches.
1	Eye speculum.
1	Boric acid bottle.
1	Condensing lens for foreign bodies in eye.
1	Ear and nose forceps, ring handles.
½	Dozen 4-oz. labeled bottles with ground stoppers.
1	Spatula.
6	Catheters, assorted kinds.

1 Dozen assorted sounds, male urethral.
1 Retinoscope.
1 Headband with mirror.
1 Eye testing shield.
1 Dozen eye droppers, special tip.
1 Dozen plain medicine droppers.
2 Five c.c. pipets, grad. one tenth.
1 Ten c.c. pipet, grad. one tenth.
3 Plain pipets, assorted sizes.
2 Glass funnels.
3 Packages filter paper, assorted sizes.
2 Hypodermic syringes, 2 c.c.
1 Dozen hypodermic needles.
1 Test tube rack.
1 Test tube holder.
2 Evaporating dishes.
2 Staining jars.
1 Combined burette and funnel stand.
2 Pieces wire gauze for Bunsen Burner.
6 Dropping bottles.
2 Dozen tissue finger cots.
2 Aprons made of rubber sheeting.
3 Glass graduates, assorted sizes.
½ Dozen glass stoppered bottles, 1 pint.
½ Dozen glass stoppered bottles, 1 quart.
2 Pair sleeves made of rubber sheeting.
½ Dozen glass stoppered bottles, 2 quart.
4 White enameled washbasins, assorted sizes.
3 White pitchers, assorted.
1 Dozen Erlenmeyer flasks, assorted sizes, 4 oz. to 2 qt.
2 Dozen test tubes, assorted.
1 Set railway eye test cards, complete with illiterate cards.
2 Urinometers.
2 Clinical thermometers, 1 minute.
1 Set silver plated ear specula, 3 in set.
2 Hypodermoclysis needles.
1 White enameled table with porcelain top and shelf 18 by 33 inches.
5 Pounds assorted bandages, gauze.
1 Roll 12-inch Z. O. adhesive plaster.
5 Pounds sterile absorbent cotton.
6 Five-yard packages sterile gauze.
3 Twenty-five-yard packages sterile gauze.
1 Fracture box.
1 Lungmotor.

As to the officer operating the dispensary the following would be "reasonable" attention:

First, the attendance of a trained, licensed nurse; or, second, the attendance of a licensed physician.

Aside from the first aid administered as above *at emergency stations* no service rendered on the grounds or in the plant would be considered "reasonable" unless administered in such a dispensary and by such persons as indicated.

Nor could such service be considered "reasonable" in the case of any one treated in such a dispensary by a nurse unless the injured one be seen by a licensed physician within twenty-four hours after the application of the first treatment; nor would it be legal under the laws of the commonwealth for such treatment to be renewed without first having been passed on by a licensed physician.

All hospitals owned or operated by an employer should be incorporated.

Lantern slides of Works' Dispensaries were shown by the chairman, Dr. Patterson.

Chairman: I do not know of any subject that is of more vital interest to this gathering than the one so ably presented to you by Dr. Baldy. It is of absolutely vital importance to the great commonwealth of Pennsylvania that the man or men injured in their daily toil shall be returned to productive labor at the earliest possible moment. Anything that the state can do to insure that return we are in duty bound to do or be faithless to our trust, and I hope you will discuss the recommendations of Dr. Baldy as to what constitutes "reasonable service" with the greatest detail and give us the benefit of your advice because when the ruling on this subject is issued by the Compensation Board it will become just as much a matter of record as if passed by the General Assembly.

The Compensation Board will issue this ruling to those who do not comply, and they will be penalized accordingly, and we want you to help us by giving out of your fountain of wisdom your experience and your information, and please don't hesitate to do it.

Dr. L. G. Shrom, Pittsburgh: I have heard a great deal said about the industries, and have heard the discussions as to the best things for the laboring man.

I come from a department store where the larger portion of the working people are saleswomen. I find myself very much interested in what one of the speakers said today. Regarding that matter I should like to say in defense of our profession, that there was a little breach that was unnecessary between his physician and the one to whom the unfortunate applicant went.

Now there is a rule in the firm where I am employed that when one of our employees is very seriously injured it is my privilege to call into attendance the family physician.

Dr. Musser of Chicago, the man who has charge of the medical work with Marshall Field and Company, has stated that in these days of commercialism we are compelled to have as nearly as possible 100 per cent. efficiency in our employees. That applies just as well to women as to men. Dr. Schereschewsky stated this morning concerning the home environment, the inefficiency of many workers is explained by these men having, during the night, to take care of members of the family who are sick. Such procedure does interfere with business.

There comes to my mind something that was said by a gentleman who is well known all over the state of Pennsylvania. It is that when we reach the long looked for goal we will have helpers who will go and take care of a man's family, thus allowing him to have his proper rest and enabling him to perform his work thoroughly.

I am reminded of an instance in our store. The head of the lace department, one of the most important departments of the store, came to my office the other day completely broken down. I found her a nervous wreck, as she had cared for a sick father all night. In the father's opinion the daughter was the most efficient nurse, more efficient than the trained nurse, and the demands he made on her rendered her unfit for her next's day's business. One hundred per cent. efficiency was absolutely impossible because of the domestic situation at home, and in that large department store nobody knew the true conditions but the patient and the doctor upstairs.

What I am particularly anxious about and want is your cooperation so that the feminine portion of the vast army of laborers whom you various men represent shall have the care that many of them do not have now.

I realize, after eleven years' experience with this firm by which I am employed, that my work is spreading out little by little into the very homes of the people. It has increased from a tiny wee corner to a trained nurse and four beds in two rooms in the house itself. Then I have the active cooperation of a neighboring hospital and I have thereby the help of that hospital.

Somebody spoke a little while ago concerning the surroundings of the workmen in the coal companies. Now, our firm has a forty acre farm where our young people are taken to prevent their getting sick. They may have their vacations there if they wish. This is done in order to keep the standard of health which is necessary for 100 per cent. efficiency. I bespeak your cooperation for the feminine portion of the laboring people wherever they are.

From the Floor: I agree with Dr. Baldy in a great many of the recommendations that he has made, but I take exception to a number of them because, while they may be practical in a manufacturing industry, there are a few that will not be practical in a coal company where they have perhaps twenty, twenty-five or thirty openings or workings scattered through a territory having a radius of thirty or forty miles.

For instance, in regard to the hospitals with an elaborate equipment, it seems to me that his estimate is unnecessary. Such an elaborate hospital would mean at least for our company (we have hospitals as the law requires inside and out) an outlay of $400 or $500 at each one of its workings. It would mean to us at least thirty or forty hospitals, and would necessitate the employment of perhaps thirty or forty nurses, if I understand Dr. Baldy. We now employ six nurses. They help to do the work as far as the injured are concerned, but at the present time their work comprises at least from 50 to 60 per cent. welfare work.

This force we intend to increase as occasion demands, but to employ a nurse where one hundred men are employed would be very impractical for all the anthracite coal companies.

I want to speak in regard to iodin. In the use of iodin by means of the brush from a two ounce bottle, the first aid man would use the brush for all wounds and it would not be a practical thing; it is not a good thing. It would be far better to have an individual bottle for each case. It would be a great deal better to use a little stick of wood with some cotton on it for each application, and then destroy it. A bottle of iodin will keep strong if you use a rubber stopper in the bottle. You know how easily your iodin evaporates; unless properly corked you will have, in the course of a week or ten days, an iodin that is not fit to use.

Dr. J. B. Lowman, Johnstown: I believe in some instances there is too much first aid. I know of some places where nurses are treating wounds that physicians have not seen, and they have even gone so far as to prescribe different medicines. The interpretation of this law will overcome a great deal of that. I really think that first aid is being overdone in a great many places.

In our plant our nurses are allowed to apply only the primary dressings, and then the injured persons are sent to the base hospital. I think this is the correct way. What his system shall be each man must work out for himself, and he must decide from which he can get the best results.

I noticed on the program that Dr. Zimmermann was to open this discussion. I should like to hear from him.

Dr. Randall Zimmerman, Wilmerding: It has been my pleasure to have an advance copy of Dr. Baldy's paper, and I am glad to concur in all that he has expressed concerning "reasonable" treatment as applied to the Workmen's Compensation Act. Personally, I find that the treatment of those employees working at some distance from the central plant can be carried on by a competent first aid man—the subsequent dressing to be made by one in authority. This plan seems to meet with favor among the men, as they do not wish (in the case of slight injuries) to be compelled to walk the distance to the central station, there perhaps to await their turn. The more serious forms of injuries are given first aid at the substation, and the patient is then immediately transported to the central station where he is treated by a physician (one or two of whom are in constant attendance). We find that this system is much appreciated by all the employees, as the prompt attention which we are able to give them usually permits them to return to their homes instead of taking a much dreaded trip to the hospital, or perhaps I should say a trip to a much dreaded hospital. So much for the reasonable phrase as applied to the employee. But the thought of reasonable treatment as applied to the employer appeals to me as being apropos for discussion at this time.

A man sound in all his members is a useful adjunct to his employer. Given a man maimed, be it in a slight or greater degree, at that moment the efficiency of that particular working unit becomes diminished or entirely lost. It is now incumbent on the employer to furnish reasonable treatment to the injured man, and it is a matter for serious consideration as to just what constitutes such treatment. Of course the first thought of the employer is the monetary cost of the service of this particular case, but over against this cost, and too often lost sight of, is the ever-increasing cost of the idle machines, and diminished production. And the employer finally awakens to the fact that the treatment which he may have considered reasonable to the man has proved most unreasonable to himself, and that the advantage gained both from an economic and humanitarian point of view, in quickly restoring his injured employee as a useful member of his organization, at a cost which at first seems prohibitive, far outweighs that which he thinks he will attain by limiting the cost of treatment to what the law defines and he believes to be reasonable.

Mr. Chairman, for my information I should like Dr. Baldy to explain why he thinks it necessary for a private hospital to be incorporated.

Dr. Baldy: An incorporated hospital is more or less under control of the state and the state can have its finger on it with the rest of the hospitals under its jurisdiction. An institution or plant, having a hospital of its own and incorporating it, would easily qualify under this interpretation of the act, and this would not interfere with the working plans of the institution. I should like to say one word. The word vial was used very carefully instead of bottle in applying first aid by trained men. Of course the vial contains only one dram of tincture of iodin.

When the first aid package has once been opened, all that remains after a portion of it has been used must be thrown away. The unused contents should not be applied to any wounds. The second object was to eliminate the unnecessary things in first aid. The greatest damage to the man by reason of infection is often done at that time and results in nine cases out of ten from mischievous interference. The idea is to limit, as closely as possible within the limits of safety, all interference at this time, to disinfect the wound and then close it up until it can get into the hands of some one competent to take care of it.

The question of the cost to the employer I do not think need be taken into consideration or given a thought. If the employers have any cause for complaint, it is with the state and with the act itself, and not with the reasonable and proper interpretation of the wording of the act.

We have not taken into consideration the cost because we believe that it would more than one-hundred-fold save the employer the amount of ready money he would have to invest.

Dr. C. L. Johnstonbaugh, Bethlehem: We have heard so much this afternoon and today about the good of the men in the various iron mills and railroads, but we have heard so little of what you are going to do with the women and young girls in the manufacturing establishments in which they are employed.

I happened to be consulted in regard to such a condition since the first of the year. A company near Bethlehem came to me and asked me what could be done to save time for the young girls. They are very busy and to allow these girls to go home for certain ills means a whole lot to their work. I advised that probably 90 per cent. of the ills of those factory girls were menstrual disorders. A girl may come to work in the morning, develop cramp, and a little headache, or have a fainting spell. I advised the firm to fix up a little room right in the building.

I also consulted with their surgeon for the male employees, and I recommended that they equip a small room for emergency work. They equipped this room with certain dressings and certain antiseptics for the injured, and one of the men is trained to administer first aid in emergency. They have a lady who has charge of all the girls. I took the time to go there and give these girls a fifteen-minute talk on their ills of nature, or whatever you may call them, and then I put in that room a few drugs, among which was a stock bottle for these ills, labeled with the dose of the drug to be given and the amount of the second dose.

The firm reported back to me that it has been one of the greatest savers of time that they know of. The girls are pleased with the outcome of the suggestion. I asked the opinion of the lady in charge and she stated it is the most wonderful thing that she ever heard of. The girls come to her and she takes them into the little room and gives them a dose of this medicine, repeats it in an hour or two, if necessary, and the girl does not miss a bit of time. All this is furnished free by the firm.

From the Floor: Is it reasonable because one gets better care than another that we should not make an effort to do better than any of us have succeeded in doing so far?

I am pleased to state that in 1904 we first instituted first aid in our system. We tried to do a little better in 1906 by inaugurating a system of first aid. This meant a proper package in a proper container, absolutely sterile and in such condition that anybody with a little instruction could apply it to the wound. With these packages and a stretcher we equipped every train, every baggage car, every station, every caboose and various other central points. As these emergency outfits take care of first aid that might be applied by anyone to any injured person, we went further and took up a regular course of instruction and have evolved a method whereby fifty odd men are fully qualified to do first aid dressings.

This point is emphasized: sometimes the injuries are very serious and the instructions to the first aid men are to have a physician see every case, not within twenty-four hours, but at once, or as quickly as possible. A very seriously injured man is taken to the hospital attended by the surgeon or first aid man. From the medical standpoint, I think Dr. Baldy is correct. The question is, are we reasonable in our efforts? If so I hope that we can still be more reasonable from that standpoint.

Dr. Judson C. Fisher, New York: While I do not come from Pennsylvania, I was born here. I wish to call attention to the fact that while you are discussing reasonable service, Dr. Baldy and his committee should also consider reasonable hospital and surgical charges for those services. I was much surprised when I had a conference with some of the county society members to have one doctor, who is an officer in one of the societies, tell me the following: I said to him, "Doctor, if a man comes to your office with a finger broken, how much would you charge that man?" He said, "Who would pay it, the man or the firm? If the man pays it, that would be 50 cents. If the firm would pay it, that would be $1."

I was equally dumbfounded to find out that the Harrisburg Hospital here charges $2 for a ward case. I understand that $1 of that goes to the doctor. I am for the doctor first, last and all the time. The company which I represent spends 65 per cent. of its money that goes out for compensation for the doctor, but where a hospital is charging as high as that, I think it should also be taken into consideration by this committee, because the manufacturers you are talking about this afternoon are the big manufacturers, but there are little manufacturers who employ small numbers of men and who do not have the capital to put into large investments, etc.

I thought that would be a little hint when they talk about reasonable service. The great question to me is, and I would like you gentlemen to tell me, did these men receive reasonable service before this law brought it to their attention and also what was the method of taking care of these cases before this Compensation Law went into effect?

I find the doctors here in Pennsylvania will charge a man a large sum for a small injury and never think of taking him into a hospital. When they come to the question of minor injuries, then the doctor runs up a bill and he objects when they prorate the bill.

I think that thing should be taken into consideration. I have from fifteen to twenty letters every day from doctors in Pennsylvania and I want to set them right with regard to this question.

Dr. J. S. Niles, Carbondale: I want to take exception to what the gentleman just before me stated about the prices. The figure he mentioned may be the price in some localities. I do not believe every doctor sends these minor injuries to the hospital, not up in the coal regions.

It seems to me the surgeon ought to be honest in the care of compensation work the same as he has been in the past. This Compensation Law will not change the majority of surgeons (the integrity of them) but I believe the honest man, as before, will treat his patients honestly and charge an honest bill to the honest corporation. I believe it is essential to send cases to the hospitals where the men will get the best treatment, and it is a physician's duty to do that. I do not believe that he has any right to double-charge. That, I think is a matter for the insurance carriers.

I should like to ask Dr. Baldy what kind of first aid hospital he would have in the collieries. As Dr. Mengel stated we have up there for the D. and H. Company several collieries at different points. They work a different shift. There are different men superintending these collieries, and a great many of the workers are foreigners. These men are yet somewhat suspicious about this Compensation Act and the treatment. They do not want to be idle without the assurance that they will be paid, and therefore they put aside any slight injury.

Now to install a hospital such as was shown on the screen in each one of our collieries would be hardly possible, and I do not think Dr. Baldy contemplates that. My plan would be to get some ideas from those who have had experience in first aid hospitals. I want to agree with the gentleman who stated that there is too much first aid. Sometimes I think it is mischievous interference. I believe that first aid men should be taught what not to do as well as what to do. I believe that we are making progress but perfection is not obtained at once, and Pennsylvania is going as rapidly forward as any other state in the Union.

Dr. S. J. Repplier, Philadelphia: I noticed in Dr. Baldy's statement that he speaks about the trained or licensed nurses at the head of the plant hospital in a manufacturing establishment. We have had equally as good service from a hospital orderly who had had considerable training in a receiving ward and I think every one of the men treated in our hospital preferred to have a man nurse rather than the licensed female nurse.

Dr. Baldy: Our requirements would not exclude that type of employee especially trained in first aid work. You will note that in small industries (take, for instance, in small textile works) there are few injuries. The idea is that you can take any office worker, make that individual absolutely responsible for the work and train him in the work. That would take in your orderly. In a plant employing over 100 people we presume that it is not burdensome to any employer to employ a nurse at $60 to $75 per month.

From the Floor: It seems to me that the subject of "reasonable service" could best be determined by a committee. I move that the chairman be requested to appoint a committee representing the various industries in this state which will formulate a suitable type of equipment to be installed in the various plants.

The motion was adopted.

Dr. I. D. Metzger, Pittsburgh: It seems to me we are getting away, just a little, from the subject as to what "reasonable service" means. This as applied to corporations means the referring of cases to a licensed physician or some qualified person who does first aid work and does it properly. We have already heard from several that first aid is running riot. The circumstances of the times lead toward that.

Among other things, make every first aid club secure a director to give a course of lectures. Your division has been asked to define what within the law would be first aid. This pertains especially to the requirements for the different industries. Shall cases be retreated, redressed and cared for continuously by some irresponsible person?

Our bureau has decided that that shall not be so. The case must be referred to a licensed physician or to a hospital. If in your work your first aid man does more than make the person comfortable, that first aid man does more than he is authorized by law. This applies to all conditions. The person who learns to help an injured person is apt to want to continue the work of taking care of that person afterwards, which is going beyond the law and everyone throughout this state should be made familiar with this ruling. It seems now, since the limitations of first aid are known, that as soon as possible such cases should be referred to some authorized person to comply with the ruling; that is "reasonable service."

Dr. S. E. Hayes, Byrnedale: The subject has been very well threshed out. Dr. Baldy's suggestions are very plain. I do not see that any more "reasonable service" could be given, certainly you could do nothing less.

In reference to the building of emergency hospitals by employers who employ a great many laborers, I do not believe that the corporations will object to $300 or $400 for emergency stations. It has been my observation that after they have seen the hospitals established they are very glad to have them.

From the Floor: There is one thing that has not been brought up, that is the nonpayment of compensation for the first fourteen days of disability. I treat quite a number of the poorer Italians, and I find it is quite a hardship that they should be kept from their respective occupations for ten days and then be allowed to go back to work and have no compensation at all.

I think that we should consider that something should be paid to them for the time that they lose.

In regard to the iodin treatment, that has been pretty well threshed out. The way we take care of this mooted question is, we have just a small sterile package in which there is a piece of sterile gauze; attached to this sterile gauze is a bandage. The gauze is immediately put over the wound and the bandage then tied.

There seems to be quite a difference of opinion as to whether we should have a registered nurse or not and whether the nurse should be male or female. In our plant we have registered male nurses but the majority of them, I am sorry to say, are not always satisfactory.

That brings me to raise a point. Why have a nurse at all? This first aid business, I think, is very much overworked. A physician is supposed to be on call all the time, and if any of our employees are hurt, we have to answer the call ourselves, and the men who are hurt are given first aid treatment by the physician.

From the Floor: There was a question from a gentleman here who did not come from Pennsylvania who wanted to know why it was the hospitals were making excessive charges both for house cases and for dispensary cases. I notice in some of the rate schedules that have been sent to us by the hospitals that the first dressing of a fracture is $5, and each succeeding one is $2 or $3. I want to know who is responsible for the fixing of these rates. Is it the State Board of Medical Education and Licensure or is it the individual hospital?

One thing more. The company I represent has fifty surgeons who are called on in all cases of serious injury. Where the injuries are slight the men are sent to their homes. The serious cases are supposed to go to the hospital, but I find that since we have been working under the Compensation Law the hospitals do not get as many patients as they formerly did.

Chairman: The subject that is being discussed is what constitutes reasonable service and not what constitutes reasonable charges. That is entirely separate, and until we open up that subject, I shall have to ask you to defer discussion of it. I wish to apologize to Dr. Lauffer that, owing to the hour being so late, we shall have to dispense with either his paper or the pictures. It is impossible to have both, so with your permission we will have his paper at our conference in the fall. It is a subject of vital importance, and I am only sorry that the hour is getting so late that we cannot hear it this evening.

From the Floor: I have come from the state of New York especially to hear this paper and as I have come a long way, I wish we could hear it.

Chairman: I leave it to you gentlemen, which we shall have, the paper or the pictures. It seems to be the desire of the conference that we have the paper.

INGUINAL HERNIA: VIEWED AS AN ANATOMICAL DEFECT

CHARLES A. LAUFFER, M.D.
WILKINSBURG

(A summary of the paper.)

The descent of the testicle leaves a weak place in the belly wall. Nature is not a perfect architect; an imperfect closure of the processus vaginalis is a developmental defect, which predisposes to oblique inguinal hernia. A patent processus vaginalis is a potential hernia.

"The sac may exist for years and remain empty." Hernia into a preexisting sac is not an accident, but the consummation of a practically inevitable result, arising from the latent defect. The peritoneum and the infundibuliform fascia, covering the internal ring, make a dimple, a slight depression, at this point. This dimple is accentuated, the cavity enlarged by every increase in the intra-abdominal pressure; and gradually a pouch is formed. In this manner an acquired oblique inguinal hernia is slowly developed. This dimple at the internal ring deepens to form a sac for a hernia more rapidly, if the inguinal canal is too patulous.

The factors producing an over-patulous inguinal canal are: (*a*) Inherited thin abdominal muscles; (*b*) excessive fat, by increasing the mobility of the peritoneum, and by pressure atrophy of the abdominal muscles; (*c*) emaciation by absorption of the subperitoneal fat and the fat within the tissues of the spermatic cord.

The developmental hernia (into the preexisting processus vaginalis) and the acquired hernia (the shoved out peritoneum and infundibuliform fascia) are both accelerated by an over-patulous condition of the inguinal canals, thus produced. Both types of oblique inguinal hernia are thus due to anatomical defects. A hernia into a sac of prenatal origin, or into a slowly acquired sac, is not an accident, because the filling of the preformed sac merely leads to the discovering of a previously existing anatomical defect.

Hard work develops the muscles of the abdominal walls, so that the well-nourished artisan is less inclined to hernia than the ill-nourished clerk of sedentary habits; though statistics of various occupations in relation to hernia have not been adequately tabulated.

The tendency to hernia can generally be diagnosed by the surgeon in advance of its advent, but an empty hernial sac may escape detection. Hence, the desirability of repeated physical examinations. Though the relative tendency to hernia is based on the patulousness of the inguinal canal at the external ring, it is evident that the pressure from within, the intra-abdominal pressure, is an equally potent etiological agent.

The factors which increase the intra-abdominal pressure are: (*a*) Respiratory diseases—coughing, etc.; (*b*) gastro-intestinal diseases—enteroptosis, constipation, etc.; (*c*) genito-urinary diseases—stricture, vesical tenesmus, etc.; (*d*) obesity—increased omental, perirenal and subperitoneal fat.

These increases in the intra-abdominal pressure, acting from within, press fluid into the hernial sac (the fluid serving as a dilator), until the sac is sufficiently stretched to admit a segment of intestines, which, in turn, serves as a dilator.

In a hernia there is thus a gradual stretching; the anatomical defect becomes worse, aggravation follows aggravation. Nothing is torn, hence the term "rupture," in the sense of something being broken or torn, is a misnomer.

The campaign of education must include the medical profession, as so many doctors goodnaturedly follow lines of least resistance, and agree with their patients, using the word "rupture" as a synonym for "hernia."

A true traumatic hernia tears the peritoneum, drives the contents of the sac through the walls of the sac, causes extravasation of blood, produces shock, is immediately disabling, requires surgical intervention. "Four cases of traumatic hernia were discovered in a series of 50,000 cases, and in one of the four cases the patient was gored by a bull."

As hernia is due to an anatomical defect nine hundred ninety-nine times out of a thousand, and is truly traumatic in less than one case out of a thousand, it is clearly a misapplication of compensation funds to pay for hernia as an accident.

The disposition to hernia, and the aggravation of existing hernia as well, is an individual hazard. To transfer this hazard from the individual to the industries employing such individuals, by legislative enactment, is unfair and unreasonable.

Should the several states inaugurate a more universal plan of disability insurance, covering both sickness and accident, the employee paying half and the employer paying half, then the employee would be justly protected for hernia, and other maladies due to anatomical defects, which are properly classified under "sickness."

Dr. A. W. Colcord, Clairton: Dr. Lauffer has given us a splendid paper. I most heartily endorse the advanced stand he has taken on the question of traumatic hernia. I have never seen but one case that I believed to be entirely the result of accident, and that a few months ago.

During the past eighteen months I have made something over 4,000 physical examinations. In this work the man is stripped and examined thoroughly from head to foot. Especial attention is paid to the condition of the inguinal rings. He is examined first lying down. By inspection, we look for signs of his having worn a truss, for the presence of hernia, for a depression at the internal ring, and for an impulse on coughing. Most hernias, and many open rings, reveal themselves to a careful inspection before the applicant has been touched. By palpation—direct pressure is made over the internal ring, both at rest and while coughing, then the little finger is inserted into the inguinal canal and we note the size of the external ring, whether the canal is open, the condition of the internal ring, and whether there is an impulse at the internal ring on coughing. If in doubt as to the presence of hernia, the applicant is required to stand, and again the condition of the rings is noted, both by inspection and palpation. A bulge which rapidly disappears after coughing is usually an open ring; if it slowly disappears, or remains until reduced, we have a hernia. If still in doubt I usually have the applicant lift a heavy table while I inspect the rings.

If an applicant has a hernia we make a record of same, with its classification, whether single or double, complete or incomplete, reducible or irreducible, inguinal or femoral, whether he wears a truss and how long he has had the hernia.

Open rings are conveniently divided into those of the first, second and third classes: In an open ring of the first class, the external ring admits the little finger easily and stretches easily. There is little or no perceptible impulse seen or felt on coughing, and no weakness at the internal ring felt on direct pressure. In an open ring of the second class, the external ring may or may not be larger than that of the first class, but the internal ring shows a spot of less resistance on direct pressure, about the size of the middle finger, and there is a slight impulse seen and felt on coughing. In an open ring of the third class the external ring may be so large as not to be found, although I have seen a few with a small, tight external ring, but the internal ring easily admits the finger or thumb on direct pressure, and shows marked bulging on coughing.

Dilated rings of the third class are borderline cases, and can be differentiated from true hernia only by standing and coughing, or by lifting a heavy weight. All open rings of the third degree are potential hernias.

Under existing laws in Pennsylvania and many other states, the applicant for a job cannot sign a release to his employer, the latter, in hiring him, takes the responsibility and assumes the risk. It seems to me that any employer of labor would, under these conditions, be justified in rejecting all applicants who have hernia or open rings of the third degree. It would seem that, as a result of our compensation laws, there will be a growing class of workers who have some permanent partial disability, congenital or acquired. Those unfortunate individuals who have lost an eye, a hand, or a foot, who have a hernia or a potential hernia, are exposed to greater risk of permanent total disability than the normal individual. The risk to the employer here is much greater, and he does not dare to hire such a man. The man with the one eye may lose the other one; the man with the potential hernia may at any time acquire a complete hernia with all its attendant dangers. With our present law it will become more and more difficult for these cases of partial disability to obtain employment. This works a hardship to three parties: First, the man himself is changed from a self-supporting individual to a pauper, partial or complete; second, the employer is deprived of the much needed services of the applicant; third, the community is burdened with the support or partial support of the man and his family.

Might I suggest that we so amend our present law as to permit these unfortunates to sign a release to their employer, from liability for loss of time or life from accidents rendering their partial disability complete. For instance, a man with hernia or an open ring might be allowed to sign a contract releasing his employer from liability from accidents resulting from hernia. A man who had already lost an eye could release from liability for injuries to the other eye.

I might add that this suggestion is made with the most friendly feeling toward our present liability law. I believe that Pennsylvania has by far the best one among the states now having such a law. I am sure the great employers of labor of this commonwealth and the great army of employees appreciate the attitude of fairness on the part of the State Commission. The calling of this meeting of surgeons, representing as they do many of the great corporations operating in Pennsylvania, is proof of this spirit of fairness. It will be productive of much good to all concerned.

Chairman: In answer to Dr. Colcord's statement about signing a release under the laws of Pennsylvania, it would not be worth the paper it is written on and I doubt if the legislature of Pennsylvania can pass an act that will be constitutional which will permit a man to sign a paper like this which would stand in the courts.

I am sorry that we cannot go on with the discussion of this very important subject.

I want to express to you gentlemen the appreciation of this department in assisting in our efforts to administer the law, and I ask you men to stand solidly back of the governor in his efforts to put on our statute books progressive legislation which is worthy of this great commonwealth.

To this end let us take home this thought so ably expressed:

> Ring out the slowly dying cause
> And ancient forms of party strife;
> Ring in the nobler modes of life
> With sweeter manners, purer laws.
>
> Ring out false pride in place and blood,
> The civic slander and the spite;
> Ring in the love of truth and right;
> Ring in the common love of good.
>
> Ring out old shapes of foul disease,
> Ring out the narrowing lust of gold,
> Ring out the thousand wars of old,
> Ring in the thousand years of peace.
>
> Ring in the valiant man and free,
> The larger heart, the kindlier hand,
> Ring out the darkness of the land;
> Ring in the Christ that is to be.

The Conference adjourned at 6 p. m.

PRESIDENT'S ADDRESS

THE BUSINESS FEATURES OF THE MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA

CHARLES A. E. CODMAN, M.D.

PHILADELPHIA

(Delivered at the General Meeting of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 18, 1916.)

It gives me great pleasure to welcome you all to the Sixty-Sixth Annual Session of the Medical Society of the State of Pennsylvania. We are here assembled for study and interchange of views on matters vital to the public health and to the profession in general. This annual gathering binds us closer together and increases and broadens our knowledge.

In accepting the office of president of the state society, I desire to express my appreciation of the honor I feel you have conferred on the Philadelphia County Medical Society rather than on any individual—the highest honor in your possession. As their standard bearer I shall try, as I first promised, to give you the best that is in me.

During the past year, acting as an understudy to the president has offered an opportunity to look over the workings of the society and gain an insight into its condition. Dr. McAlister has worked constantly to improve conditions and extend the power and influence of our organization. With the able and wise assistance of the secretary, Dr. Stevens, the society has continued to be carried along in a serene and quiet manner. We have on our rolls nearly 7,000 members, scattered throughout every county in the state. With this long list of men prominent in every community it seems strange we do not accomplish more for the conservation of the public health and the general welfare of the profession.

The woeful lack of influence in the last session of the legislature terminated in the passage of the Workmen's Compensation Law without even so much as the slightest recognition of the physician. The reason for this loss of power has been attributed to various sources; however, the consensus of opinion seems to favor the idea that we have been working as a sectarian medical body and not representing the viewpoint of the entire profession. To remedy this condition, efforts will be made to hold joint meetings of our Committee on Public Policy and Legislation with those of the Homeopathic and Eclectic Medical Societies and if necessary with other organizations. These are the licensed practitioners in Pennsylvania. If we can agree, we can go to Harrisburg asking for that which is requisite and necessary for the public health and for a united profession. In a combined effort of this character we must have the cooperation of the State Department of Health and the Bureau of Medical Education and Licensure. This will mean concerted action and will receive such recognition that it will surprise the most ardent supporter of the proposition. Such a plan must be supplemented by personal work. The Committee on Public Policy and Legislation scans every bill and endeavors to keep the society informed as to the nature of all legislation affecting the public health and the practice of medicine. The united efforts of the combined societies will prevent the misunderstanding of the true purpose of the profession. Not until the time when the medical profession realizes the necessity for concerted action will results be accomplished.

At the next session of the legislature, a so-called Health Industrial Insurance Act will be introduced. This measure is of great importance and should receive most careful attention. It is intended to cover all cases not included under the Workmen's Compensation Act. As before stated, during the last session of the legislature the Workmen's Compensation Law was passed without advice from or consultation with the medical profession. The Compensation Board is trying to carry out the provisions of the law in a just and equitable manner. Efforts have been made from outside sources to interpret the law in such a manner as to interfere with medical judgment, to jeopardize life, and to place a commercial value where none should exist. The underlying purpose of the law is just and good. The entire law, however, is dependent on the medical man and none of its terms can be enforced without him. Many of its provisions are unsatisfactory and need to be amended. The agitation which is being systematically sought for legislation for those cases not provided for under this law will probably ultimately result in the State Department of Health taking over the entire care of these patients.

During the past year, by a decision of the Supreme Court of the United States, the Harrison Act, in some of its important provisions, was declared null and void. It would be a laudable object for the Pharmaceutical Society and the combined medical profession to offer in the state legislature an act which would legally cover the disputed points and thereby secure in our own state the enforcement of the good features omitted from the Harrison Act.

Let us leave the general subject of legislation and discuss some of the plans for our organization. The Medical Society of the State of Pennsylvania, since its foundation in 1848, has practically remained unchanged in its policies. It has allowed matters vital to the profession to drift along in an easy, carefree manner, believing the efforts of a chosen few would stem any adverse tide. Those who have worked in committees realize the general apathy of the profession and the difficulty of arousing concerted action. When hundreds of letters are written (and there is no response) and personal efforts fail to accomplish a definite object, committees become demoralized and their energies lag. The need of some one who is thoroughly conversant with all the workings of the society is self-evident. At present this work is performed by the secretary, Dr. Cyrus Lee Stevens, and the able manner in which it is done is shown by the good results and present condition of the society. The office of the secretary is the most important and influential one in our organization. We pay our secretary just $1,000 a year, and out of this he must provide for his office help. This amount is entirely inadequate for the services rendered. In addition to the duties as secretary, Dr. Stevens acts as editor of the Journal, and at present for this work he receives no salary. The society allows him a lump sum for editing, publishing and mailing the Journal. For the last few years this sum has been $1 per member. Many criticisms are hurled at the expenditure for the Journal, so a careful analysis of the situation seems advisable. The cost of the Journal is eight and one-third cents a copy per member for each of the twelve issues. The income from the advertising belongs to the editor. Therefore, the secretary-editor-publisher receives in round figures from the society $8,000 a year for all his work as well as furnishing 84,000 copies of the Journal. So far as the investigation has proceeded, it leads to the conclusion that the Journal costing each member as it does eight and one-third cents a copy, the secretary-editor is giving us at a minimum cost a high-class ethical publication of which we may be justly proud. I have tried to present the facts in a clear and concise manner, and they show that any profits that might accrue must come from the advertising and the publication of reprints. However, we must remember the advertising pages of the Journal are restricted ethically to a limited class of advertisers, and the reprints are furnished at cost. Any effort made to secure revenue from this source would necessitate a complete reorganization of the affairs relating to the Journal—assuming all its liabilities, receipts and expenditures.

The secretary-editor would be placed on a stated salary which would enable him to live, retire from active practice, and devote his entire time to the society and its publications. The assistant secretary could be provided for in the same manner and thus give his entire attention to perfecting our organization along lines similar to those of the American Medical Association. The idea would be to broaden the influence of the state society and to strengthen and deepen the interest in the various counties. In the natural course of time changes will occur and the outlining of a definite policy for the future and gradually perfecting it will prevent undue haste and confusion. It does not seem just to Dr. Stevens, who has devoted the last twenty years of his life to the work of this society, to have him relinquish all his private work and devote his attention to our affairs for the small sum of one thousand dollars a year. If any changes are to be made, they should be made during his lifetime, while he may be able to help and advise. If they could be successfully carried out, they would be a crowning reward for his many years of devoted service.

On the other hand, the rapid and continuous increase in the cost of maintaining the state society has brought about a financial condition which is the cause of grave concern. At the present time we are wholly dependent for our revenue on the assessment made on each county society. In the last few years this has advanced from one dollar and fifty cents to two dollars and seventy-five cents. This constant increase is causing dissatisfaction and unrest, particularly in those societies whose annual dues are five dollars or less. The Philadelphia County Medical Society has always stood ready to share the financial burdens, but there is a strong feeling that it has reached the limit as to the amount of money to be paid as an assessment to the state society. The state society meets but once a year and takes two dollars and seventy-five cents for each member from each county society, while the county societies meet from four to twenty times a year and have two dollars and twenty-five cents or less left to sustain them. Last year the Philadelphia County Medical Society would have had a deficit had it not been for the income derived from sources other than dues. It is time measures were adopted to remedy this condition.

Many matters of vital interest are referred to committees which could be handled less expensively by the trustees.

Our society is entering upon its sixty-sixth year, and in the same financial state as the day of its organization. We have no endowment fund, no permanent fund, no money invested in securities, no stock in a building and loan association; in fact, nothing laid aside for the future nor preparation made for any sudden emergency. Apart from three thousand dollars held temporarily for the Medical Defense Fund, we are without financial standing. For a society as old and prominent, this is a condition to be deplored. The present workers in this society should have the foresight to provide for the future. In studying the situation, a number of suggestions are offered: We should open an endowment fund, no matter how small. A beginning should be made by obtaining subscriptions from our own members and then gradually enriching by legacies or otherwise. This fund should be annually increased. We should open an account with a building and loan association, and at maturity a goodly sum could be added to the endowment.

We should have fewer committees. This subject has been under discussion for several years. The society has already abandoned some, which course seems wise, as matters handled by committees should be referred to the trustees, who are in fact the administrating body during eleven months of the year. This economizes on traveling expenses, etc.

The society should have but one official letterhead for the entire organization (officers, trustees, secretary and committees), upon which all correspondence of the society should be conducted. This would save much printing.

The views which have been expressed on the financial questions of the society are offered with the hope that they will open the way for the development of a sound business policy.

Nine years hence we will celebrate the seventy-fifth anniversary of the founding of the Medical Society of the State of Pennsylvania. The history of our organization has been imperfectly compiled. As a matter of record, the happenings of the past should be gathered and systematically arranged. At the time of our seventy-fifth gathering a volume could be published containing this most interesting history. Work of this character requires time and patience, and in order to accomplish the desired results, a committee on archives, composed of members of the Board of Trustees, should be appointed and requested to write the history.

The influence of the society should be extended by newspaper articles on questions concerning the public health. These should be published with the help and assistance of the State Department of Health. Articles so approved are eagerly sought and published. This course was pursued in Philadelphia for one year and met with success. One of the primary objects of this society is to disseminate knowledge and to protect and conserve the public health. There is no better way of reaching the public than through the newspapers. This means of helping the public will give a better understanding of the real purpose of this society as well as increase its influence and standing throughout the state. At the present time when infantile paralysis is epidemic in New York City and conferences of physicians are being held throughout the land, and our own State Department of Health is acting concertedly with the local authorities, the need is emphasized for authentic reliable information to be given the newspapers.

Our retiring president gave thoughtful consideration to this subject in his inaugural address, and his views were plainly expressed. However, no action was taken. It is hoped some definite action will eventually be taken which will accomplish desired results.

Another activity of our society which is of paramount importance to each man personally is the continuance of the Medical Defense Fund. None of us can more fully realize the necessity for the permanent establishment of this fund than those who have been helped by it. Medical defense, backed and supported by this organization, is one of the best assets given our members and one of the strongest features we offer. The demands made for protection have been so many as to entirely deplete the amount yearly set apart for this purpose, in spite of the fact that the Philadelphia County Medical Society (which comprises one fourth of our membership) conducts its own defense, and contributes its share to the state fund. It is a source of great satisfaction to state that the trustees have through careful management sustained the fund. They should be commended for keeping the invested fund of three thousand dollars intact and for the quick and practical relief given to those who apply. Efforts should be continued to add to this fund and make it permanent. Every member should acquaint himself with the method he should follow to obtain the aid of the Medical Defense Fund. By so doing, many of the complications which arise would be avoided.

The Medical Benevolence Fund is handled by a committee selected by the trustees. The work is performed quietly and the amount expended small, and the annuitants kept as secret as possible. No member or his family ever expects to be a beneficiary, but adversity and calamity may come to any of us. It is to be hoped that this fund may be increased and the help thus extended bring comfort and relief.

The Commissions on Cancer, Conservation of Vision, Medical Expert Testimony, and Venereal Diseases of our society have accomplished much and their work is not yet complete. Medical men are calling on the sciences in their investigations, thereby making every known means help in their work against disease. The dissemination of literature by the commissions has served largely to enlighten the public without causing undue alarm. The thorough and effective manner in which the commissions are doing their work adds to the strength of the state society and creates a favorable sentiment for the organized profession. Their work supplements and endorses that of the State Department of Health and all the local and federal officers who are working to conserve the public health. The various committees of the society have faithfully performed their work and their reports will be published so that you may read them at a more convenient time.

The various county societies should hold at least one public meeting during the year and endeavor to enlighten the laity on matters pertaining to preventative and scientific medicine. These meetings have a wonderful influence and help to prove the practice of medicine is a profession and not a business, that its aims and purposes are the very highest and the men in it are actuated by the noblest motives. Meetings of this character will create more of the fraternal spirit and bring men to realize that our organization is for the benefit of physicians as a whole and the community in general.

The great war in Europe has had its effect on the entire civilized world in creating a spirit of unrest. The constant dread and fear that our own country is not adequately protected has started the movement for national preparedness. The mobilization of the state troops and their departure for the Mexican border have demonstrated that all our fears were not groundless. We are lacking in many avenues of preparedness. Congress has provided for the upbuilding of the army and navy. Little so far has been accomplished for the perfection of the medical service. Pennsylvania has always contributed her share of physicians and surgeons. Our society and its component societies must be alive to the situation and do our share for national preparedness. It would be well to work through the state society and establish a unit in every county and have our program so thoroughly made that we could call on any part at a very short notice. Thorough organization at this time will do much to continue the high standing of the medical men of Pennsylvania.

This brief résumé of the inner workings of the society is offered in the hope that we may see our way clearly to establish a financial system that will lead to the creation of an endowment fund which will ultimately place the society where it rightfully belongs; also to unite the profession, promote the public welfare, and make the Medical Society of the State of Pennsylvania a standard all others will do well to emulate.

I thank you again for the honor you have conferred on me and ask you individually and collectively for your support and sympathy.

4116 Spruce Street.

SELECTION

THE MEDICAL SOCIETY OF THE UNITED STATES

FEE SPLITTERS ORGANIZE

Driven from the ranks of medical organization as represented by the American Medical Association and its constituent associations, the fee splitters and rebaters in medicine have finally launched an organization of their own, according to the statements in a letter from the treasurer of the new society. The letter reads:

> Dear Doctor:
>
> Naturally, men are either conservative or progressive—there are always two parties in almost everything. The American Medical Association represents the conservatives; heretofore the progressives have had no great national organization.
>
> We—the majority of the medical profession—who believe in division of fees (i. e., that the surgeon should not "hog" the whole of a patient's money and leave nothing for the family doctor), are no longer welcome in the A. M. A. We are therefore organizing the Medical Society of the United States, which will not be conducted for the benefit of a few selfish egotists. We would like to have you with us.
>
> It costs only $1 to join us. This covers dues for 1916 and includes expense for the beautiful certificate of membership (suitable for framing), which you will receive on admission. Fill enclosed blank and return to me with $1.
>
> Cordially yours,
> Emory Lanphear.
>
> P. S.—Membership in your local society is NOT obligatory. On the line "Recommended by" put the names of two doctors (preferably of your neighborhood), who will vouch for you.

It is mete that the headquarters of the fee splitters' organization should be located in St. Louis, where dwells their advocate-in-chief; where also dwells the headquarters of a virile, watchful medical organization whose objects and purposes are unalterably opposed to fee splitting and whose duty it is, therefore, to direct the attention of physicians and the public to the sinister influence of the fee splitter. The officers of the new society are:

President, A. H. Ohmann-Dumesnil, St. Louis.

Secretary, George Howard Thompson, St. Louis.

Treasurer, Emory Lanphear, St. Louis.

Vice Presidents, CARL KELLER, Honolulu; Nobel Younkin, Frankfort, Ind.; Oscar J. Fullerton, Waterloo, Iowa; WILLIAM F. WAUGH, Muskegon, Mich.; BRUNO J. F. GETZLAFF, Sutton, Neb.; ⊕GEORGE L. SERVOS, Reno, Nev.; J. N. PYLE, Mineral Wells, Tex.; C. A. Bryce, Richmond, Va.; Josef Francois Replogle, Dubois, Wyo.

Among the contributors to the program we note the following:

W. FRANKLIN COLEMAN, Chicago; ⊕R. HARVEY COOK, Oxford, Ohio; ⊕W. A. NEWMAN DORLAND, Chicago; CHARLES J. DRUECK, Chicago; ⊕WILLIAM S. GOTTHEIL, New York City; ⊕WINFIELD S. HALL, Chicago; EVAN O'NEILL KANE, Kane, Pa.; ⊕THOMAS H. KELLEY, Chicago; ⊕J. C. TRITCH, Findlay, Ohio; CARL B. WAGNER, Chicago.

The names in capitals in the above lists are members of constituent state associations of the A. M. A., and those with the symbol opposite their names are Fellows of the A. M. A. What explanation can they give for permitting themselves to be implicated in a scheme to destroy the usefulness of their state associations and of the American Medical Association? What kind of loyalty do they exhibit to the organization that they have pledged themselves to support? What sort of principles govern them in joining or supporting an organization avowedly opposed to the organic law and the principles of conduct governing the American Medical Association, without first severing their membership in the latter body?

The tree is known by its fruit, and a man is known by the company he keeps.

That the little matter of a state law prohibiting fee splitting does not bother the organizers of the Medical Society of the United States is demonstrated by the fact that invitations to join the society have been mailed to selected lists of physicians in those states that have statutes against the nefarious practice.

We are somewhat curious to learn how many members of the Missouri State Medical Association will fly to the ranks of the fee splitters, now that the mustering bugle has been sounded and the recruiting office opened. None of our members has as yet been published among "those present" in the new organization, but we are quite sure that the Association will quickly accept the resignation of anyone who desires to affiliate with the Medical Society of the United States and The Journal will give proper publicity to the event.—Editorial in *The Journal of the Missouri State Medical Association.*

Dr. Evan O'Neill Kane, who is a member of the Medical Society of the State of Pennsylvania by virtue of his membership in the McKean County Medical Society, has furnished the Journal copies of the following correspondence showing his entrance into the Medical Society of the United States and his exit therefrom.

> Medical Society of the United States
> Office of the Treasurer
> 3447 Pine Street, St. Louis, Mo.
>
> June 14, 1916.
>
> Dr. Evan O'Neill Kane,
> Kane, Pa.
>
> *My dear Doctor:* I would very much like to have your name on the program of our society which will meet in this city the first week of October. If you can and will prepare a paper for that meeting, send me the title at once for the preliminary program. If you find, later, that you cannot attend, the secretary can read it for you. The main thing is to have the contribution to the program. Also we want you to become a member; application blank enclosed. Hoping for an immediate and favorable reply, I am,
>
> Cordially yours,
> (Signed) Emory Lanphear.

Kane, Pa., June 21, 1916.

Emory Lanphear, M.D.,
Medical Society of the United States,
St. Louis, Mo.

Dear Sir: I am enclosing herewith application blank for membership in the society, and also submit title of my paper which you kindly requested. Let us call it "The Possibilities and Limitations of Radium." I think this will be a fairly interesting topic to your members, as radium is coming considerably to the front, and has passed well out of the hands of quacks. The writer has gone heavily into radium recently, and has sufficiently passed through the glamor of its enchantment, and entered deeply enough into the trials and tribulations connected with it to be able to speak with feeling and some knowledge on the subject.

Very truly yours,
(Signed) Evan O'Neill Kane.

Emory Lanphear, Sept. 16, 1916.
St. Louis, Mo.

Dear Sir: I have just learned from an editorial in the September number of the Missouri State Medical Association's Journal that the "Medical Society of the United States," into which organization you solicited my membership, has for a principal object organized fee splitting. I am radically opposed to this contemptible practice, which I emphatically condemn in any and all the methods by which it is conducted. I am a Fellow of the American College of Surgeons, which is making every effort to stamp out this corrupt custom, and am pledged to do my part in the good work.

I demand the immediate withdrawal of my name from membership in your society, and its removal from the program of your coming meeting.

Yours truly,
(Signed) Evan O'Neill Kane.

THE DECLINING BIRTH RATE OF WESTERN NATIONS

The progressive decline of the birth rate among Western peoples has for many years given anxious concern to earnest students of racial problems, who have seen in it a menace to Western civilization. The English Commission, whose evidence and findings are published in a recently issued volume, was instituted in 1913 as the work of the National Council of Public Morals, which has the spiritual, moral and physical regeneration of the race as its objective. Such an elaborate inquiry was a very big undertaking for a voluntary body, but it had the approval of the government, and the president of the Local Government Board has met the commission and received a copy of the report on behalf of the government.

The evidence gathered by the commission (on which sat several free churchmen, well known in America, like Drs. Garvie, Monro Gibson, Horton, Meyer, Prof. Sims Woodhead, Rev. Thomas Phillips, Lady Barrett, Mrs. George Morgan, and Mr. A. G. Gardiner) probed the national, social and economic aspects of the declining birth rate, its extent, causes and consequences. The physiological causes, such as late marriages, the influence of disease on fertility, the effect of bad housing and inefficient nutrition, the bearing of higher education of women on motherhood, and the physiological consequences of violent sports on women were all, more or less, inquired into. The evidence is not pleasant reading—it could not be—but guardedly used it includes data of which preachers and publicists should be able to make effective use. In the last forty years the birth rate has fallen by one third. A corresponding fall in the death rate has, in a measure, concealed the evil this implies. It is among the educated classes that the fall is most conspicuous, and the evidence shows that the decline is due not to natural causes, but to deliberate evasion of parental responsibility.

The commission's recommendations include a demand for a minimum living wage with a view to improving the conditions of family life, state bonuses for children (in families where the earnings do not amount to five or six hundred dollars a year) who attain the age of 14, improved housing conditions, and cheaper secondary education. No appeal is made, however, to the educated classes in the interest of the white races. A stimulation of the sacredness of family life is recommended, and it is suggested that fathers should be urged to bear a larger share of the burden of parentage, now an almost intolerable load on many mothers.

The evidence and report open the floodgates to questions as to the value of civilization itself; and the volume which presents them calls for the earnest consideration of thoughtful people. Its value is just as high for an American student as for a European. The problems confronted and the issues raised are the same both sides of the Atlantic.—*The Christian Work,* Aug. 26, 1916.

Efficiency of Oral Preparations.—The writer has made innumerable tests with the various dental preparations as found in the market and with experimental mixtures, by plating out specific quantities used within specific times in the oral cavity and counting the number of colonies of bacteria before and after these tests, and has drawn the following conclusions from the results of his experiments: (1) Sterilization of the oral cavity with any of the commercial dental preparations or any antiseptic, in the strength in which it can be employed with safety, cannot be accomplished. (2) The cleansing of the oral cavity with an antiseptic solution alone or combined with the mechanical effects of the tooth-brush, powder, or paste, reduces the number of oral bacteria approximately about 50 per cent. The claims made for the antiseptic strength of certain commercial preparations are, by actual tests, wholly unwarranted. (3) A physiologic salt solution of body temperature in conjunction with the tooth-brush and precipitated calcium carbonate in the form of a powder or paste—provided these preparations are in conformity with the claims as outlined above—is the safest and most efficient of all so far known artificial oral hygienic measures. — Herman Prinz, *Jour. Allied Dental Societies.*

The New Slogan in Our Lives.—We are at last getting it through our heads that the day of self-sufficiency is over, and that we are, in any aspect that we choose to look at it, our brother's keeper. It was only a little while ago when we said, and believed, "Every man for himself, and the devil take the hindmost"; but we never believed it in our hearts. The human race was not built on such a false foundation. We have had some painful experiences to go through as communities and as individuals, and we have learned that no community is independent of the individuals who compose it, nor can the individual thrive without the community. One case of some dreaded contagious disease in a community proves how interdependent we are and how danger lies in the individual. One man with civic righteousness in his heart in a community proves the force of the individual. We are all part of a whole. Not one of us can live his life away from other lives and have that life rich and full. It is the day of the new slogan: Each for the other, and all together!—*The Ladies' Home Journal.*

THE PENNSYLVANIA MEDICAL JOURNAL

Published Monthly Official Organ of the Medical Society of the State of Pennsylvania

Cyrus Lee Stevens, A.M., M.D., Editor

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All communications should be addressed to the Pennsylvania Medical Journal, Athens, Pa.

The Medical Society of the State of Pennsylvania does not assume responsibility for any statements or opinions published in this Journal.

Athens, Pa., October, 1916

IMPORTANT POINTS AT THE SCRANTON SESSION

President Codman's address offered many items of interest for action by the House of Delegates, and most prominent among these was the recommendation of the creation of a department on archives, of a permanent endowment fund to be established by the Board of Trustees and of a rearrangement of letterheads, so that one letterhead will be sufficient for the society and its committees. These matters were taken up by the Board of Trustees and have received the commendation of the society, and the machinery will be put in operation to carry out the president's recommendations.

The House of Delegates approved of a resolution placing the permanent oversight on social insurance in the hands of the Committee on Public Policy and Legislation and this action was extremely wise, as it will be a permanent committee, through which information may be obtained.

The house affirmed the recommendation of the American Association for Labor Legislation and the tentative draft of a health insurance act, and recommended that if legislation is presented in the legislature in 1917 this tentative draft shall be submitted.

The report of the Board of Trustees through its chairman, Dr. Estes, on the Workmen's Compensation Act, as applied up to the present time in the state of Pennsylvania, was read at the general meeting and the Board of Trustees recommended that the coming legislature amend the Workmen's Compensation Act in that the waiting period shall be the first thirty days instead of fourteen, and that the limit of medical, surgical and hospital allowance shall be $200 instead of $75, as it now exists. A major surgical operation was defined as it will probably be adopted by the Workmen's Compensation Board.

The proposed amendments which were laid over from last year, regarding amendments to the constitution and allowing the trustees to set aside 75 cents instead of 50 cents per member for use of the Medical Defense Fund, were adopted.

Arrangements were made whereby a new section on pediatrics was established, the same to begin at the session of 1917. The president of the society, after consulting with the petitioners for the section, will appoint the section officers.

It was found that the total income of the Pennsylvania Medical Journal during the past year was less than the actual expenses, without allowing any salary for the editor. The trustees, however, did not feel warranted in raising the per capita assessment beyond the $2.75, and therefore provided for a reduction in the number of pages.

These are a few of the prominent transactions of the legislative bodies of the state society which, with many other extremely important transactions relative to the welfare of the society, closed one of the most important and progressive meetings that the society has ever held.

Van S.

INDUSTRIAL PHYSICIANS

The workmen's compensations acts now in force in the various states and the increasing number of large business houses and companies that employ their own full time medical men have resulted in another specialty in medicine, that of the industrial physician. Dr. Francis D. Patterson, chief of the Division of Hygiene and Engineering, State Department of Labor and Industry, has made commendable efforts to bring together the physicians of the state who are specially interested in the prevention of accidents, the rendering of first aid and the care of injured workmen. The Journal takes pleasure in presenting to its readers this month the reports of two separate conferences of industrial physicians held at Harrisburg under the auspices of Dr. Patterson's department.

S.

SOCIAL FEATURES

The members of the Lackawanna County Society and the chairman of the Committee on Arrangements, Dr. Harry W. Albertson, are to be heartily congratulated for the enjoyable social features provided for the members of the state society and guests. Upon all sides could be heard the most hearty appreciation of the entertainments provided. Everything passed off nicely and on schedule time. As early as Sunday afternoon members of the committee were on hand at the various hotels to greet arriving guests. Many automobiles marked "Medical Society of the State of Penna." were constantly waiting at the hotels to take members wherever they wished without cost. Many availed themselves of the opportunity thus offered and drove through the city and over the surrounding hills.

On Tuesday afternoon the visiting ladies were given a reception and tea at the Century Club by the ladies of this organization. On this occasion Dr. Christian B. Longenecker of Philadelphia gave an exhibition of color photography. These pictures of flowers, rose gardens, and horticultural shows were reproduced in the natural colors; none of the plates had been retouched in any manner but were shown exactly as they are developed. They were wonderful to behold and so lifelike that a slight stretching of the imagination would have supplied their sweet fragrance. The tea and reception helped the ladies to become better acquainted before the more formal entertainments. The Lackawanna County Society entertained on Tuesday evening with a reception and dance at the Printery of the International Correspondence Schools. This was a most delightful occasion and all who attended had ample opportunity to inspect the printery. The entire plant was in full operation and all the workings of their great system fully explained. The dance was well attended and continued until a late hour. Each lady received a black diamond hat pin as a souvenir of the occasion.

On Wednesday the ladies were taken on an automobile drive around Lake Scranton, stopping on the return trip at Nay Aug Park and the Everhart Museum where is housed a wonderful ornithological collection. This trip will always linger as a pleasant memory of the delightful time which the Lackawanna County Society gave to the ladies. During the afternoon the visitors were taken to several of the industrial establishments where they witnessed the manufacture of silk, buttons, telephone receivers, etc. In the evening the President's reception was held in the Hotel Casey. It was a most delightful occasion and largely attended.

On Thursday all the ladies were taken on a trolley ride to Montrose where they had dinner. The country traversed was of wonderful scenic interest and afforded a fine view of the Nicholson Viaduct, the largest concrete railway bridge in the world. That evening Dr. Longenecker repeated the demonstration of the Lumiere pictures and Dr. Walter B. Cannon gave a very interesting lecture on the Value of Animal Experimentation.

During the entire session there were many private entertainments, trips to the coal mines and other interesting points. There was no doubt left in the mind of any one that the Scranton physicians and the members of the Lackawanna County Society had done all that was possible in entertaining the state society members and guests. We all left Scranton with the feeling that we had been delightfully entertained and with the hope that the time is not far distant when we will be invited to return.

C. A. E. C.

THE COMMERCIAL EXHIBIT

One feature of the commercial exhibit was its accessibility. Approaching to be registered, or to attend any of the meetings of the general or the surgical section, one could not avoid passing at least a portion of the exhibit which occupied the whole space on the same floor as the meeting room. Having seen a portion of the exhibit it was a foregone conclusion that a member would inspect the remainder; this fact made it most profitable alike to the exhibitor and to the physician. The exhibitors themselves were much pleased with the attention thus given them by nearly all of the physicians in attendance. And why should they not receive this close attention, for their presence implied a mutual advantage, with obligations from each to the other. As in this day it would be entirely impossible to practice medicine and surgery without the assistance of the commercial houses here represented, it behooves us to take note of what they are doing and what they are showing. Just what this is was represented by the best in their lines—the latest in drugs and drug administration and preparation; surgical instruments and appliances of great variety and in design down to the minute for every use; toilet articles possessing charm for the ladies as well as for the men; hospital appliances and apparel; material for oral hygiene; delicacies in the line of foods and their elaboration; apparatus of the latest design for accurate eye testing, correction and operation; electrical apparatus for diagnosis and treatment; books dealing with subjects both old and new; anesthesia and respiratory apparatus; radium in its several forms; vaccines. In short, what was not represented? Surely the average physician can here obtain his annual instruction in such matters as are not covered by the textbooks. It is certain that this means of supplementing our knowledge will grow in usefulness and favor each year, and that no state meeting will measure up to its full standard of usefulness to the physician without this influence.

C. B. L.

MEMBERS OF THE HOUSE OF DELEGATES

One hundred and sixteen members answered to roll call, the following societies having present their full delegation: Armstrong, Blair, Bucks, Cambria, Carbon, Columbia, Cumberland, Dauphin, Jefferson, Lackawanna, Lancaster, Lawrence, Lehigh, Luzerne, Montgomery, Philadelphia, and Tioga. The following counties were not represented: Adams, Bedford, Center, Clarion, Crawford, Elk, Greene, Juniata, Mercer, Montour, Perry, Potter, Somerset and Sullivan. In addition to the above named fourteen counties the presidents of the following societies were not present: Allegheny, Armstrong, Beaver, Berks, Bradford, Butler, Chester, Clearfield, Clinton, Dauphin, Delaware, Erie, Fayette, Franklin, Huntingdon, Indiana, Jefferson, Lackawanna, Lancaster, Lawrence, Lebanon, Lycoming, McKean, Mifflin, Monroe, Montgomery, Northampton, Northumberland, Snyder, Susquehanna, Venango, Warren, Washington, Westmoreland, Wyoming and York.

Think of it! Fifty-one out of sixty-three members honored by election as presidents of their county societies failed to go to Scranton and represent their societies in the legislative body. A few had good excuses; one is in the English army, two are on the Mexican border and some, probably, were acting as quarantine officers, but the large majority were not doing their part for their societies and for the profession.

Of the fourteen societies not represented in the House of Delegates four had members registered at the session, leaving ten counties not represented at Scranton. Only those who were present can appreciate how much the members of these ten counties missed by not being present.

S.

THE WORK OF THE SECTION ON MEDICINE

The Section on Medicine this year contained many interesting papers. The Symposium on Pneumonia on the first afternoon was of especial interest. The work at the Rockefeller Institute was given by Dr. Rufus I. Cole. In this institute the diagnosis of the type of organism causing the disease is found by inoculating mice and examining the area of inflammation. This, followed by the use of the proper serum, is the most advanced work in the treatment of this disease.

On Wednesday afternoon, the writers of three papers in succession were not present, and in all there were seven papers not given. Dr.

Stengel's paper on the curability of cases of chronic nephritis after the removal of the focus of infection opens up a new field for the study of this type of disease. The paper and discussion on legislation in regard to health insurance should stimulate more interest in this important subject.

On Thursday Dr. Manges' paper and demonstration of lantern slides showing the importance of the Roentgen ray in the diagnosis of pulmonary tuberculosis was well received. Owing to the epidemic this summer, the paper on infantile paralysis aroused keen interest and was freely discussed. C. H. M.

THE SECTION ON SURGERY

The Section on Surgery at the Scranton session was conducted on somewhat different lines than heretofore. Letters were written to men from all parts of the state asking them if they would furnish or discuss papers. From those who responded favorably were selected men from different sections of the state so as to give proper recognition to all localities. The result was an unusual number of papers by surgeons from outside the large cities. Probably the majority of the members go to the annual sessions to be instructed, and would naturally prefer such instruction from the teachers and leaders; they attended the meetings in goodly numbers, however.

Every man on the program to read a paper was present. Some of those appointed to open the discussion failed to appear; but there was free discussion, and on some papers considerable argument and much interest. The officers did a large amount of work in providing the program and they conducted the meetings with promptness and dispatch which resulted in a decided success. W. A. N.

THE SECTION ON EYE, EAR, NOSE AND THROAT DISEASES

The nineteen papers in the Section on Eye, Ear, Nose and Throat Diseases were in the main of practical interest and value. Two of the essayists, Dr. Phillip D. Kerrison of New York and Dr. Curtis C. Eves of Philadelphia, were unable to be present because of illness in their families. Dr. Kerrison's paper on "Cerebellar Abscess—Symptoms and Differential Diagnosis," was read by the secretary of the section. The paper showed very careful preparation and was based mainly on the large clinical experience of Dr. Kerrison.

Six of the nineteen papers were contributed by members outside of the cities of Philadelphia and Pittsburgh. As we all know, a considerable effort has been made in this section for several years to enlist the interest of members who are located in the smaller cities and communities. It is a matter of peculiar satisfaction to see that members appreciate the fact that these meetings are for the benefit of all members throughout the state, and not a favored few confined to the larger cities.

It is to be regretted that a considerable number of gentlemen who were to discuss the papers read and whose names appeared on the printed program were conspicuous by their absence. In some cases a reasonable explanation of absence was given, but in others no excuse was offered. As these gentlemen are usually selected to open the discussion by the essayists themselves, it would seem that their nonappearance without explanation was not only discourteous to the members of the section, but also to the readers of the papers as well.

The "Symposium on Vertigo; What is Dizziness? The Determination of Its Cause by New Ear Tests," by Drs. Isaac H. Jones, Lewis Fisher and Seth A. Brumm, was most interesting and instructive. The papers were based almost wholly on Bárány's investigations of the internal ear and its associated nerve tracts to and from the brain. The practical deductions in the way of aids to diagnosis were brought out not only by the readers of the papers, but by Drs. B. Alexander Randall and Theodore H. Weisenburg, who ably opened the discussion. This symposium occupied the very last part of the program and was held in the room where the Section on Surgery met. Because of the very general interest of these papers to all members of the profession, the Sections on Medicine and Surgery adjourned so as to be able to attend. The hour set for the meeting was twelve o'clock but unfortunately the Section on Surgery did not adjourn until half an hour later. As a consequence not only the readers of the papers but those who took part in the discussion were of necessity hurried. The attendance, because of the luncheon hour and subsequent engagements elsewhere, while good was not what it should have been for such an important series of papers so ably presented.

Before adjournment the officers of the section, Chairman Charles M. Harris of Johnstown and Secretary George B. Jobson, Jr., of Franklin, were given a unanimous vote of thanks for the able manner in which they arranged for and conducted the meeting.

It is to be hoped that whatever the criticism may be in the review of the meetings of this section it will be considered constructive. The officers work hard to secure a good program, and it is due them as well as those members who attend the meetings that the gentlemen whose names appear on the program as readers and those to discuss the papers should make every effort to be present. J. F. C.

THE AFTERMATH

The Scranton session has passed, and it must go on record as one of the most successful in recent years. In regard to the number of members registered, it fell below the Philadelphia and Pittsburgh sessions; but for attendance at the meetings and interest in the scientific program it has seldom been surpassed. The attention of the members to the papers was good, and the discussions lively.

What were well rounded and balanced programs were in several instances greatly marred by the absence of members who were appointed to read or discuss papers. There has never been, perhaps, as large a number of delinquents among those on the program as there was this year. In one meeting of the medical section there were six absentees; fortunately the other papers were of considerable interest, and the discussion of them occupied a large portion of the time usually given to the meeting. This is such a serious matter that the attention of the society must be strongly called to it.

The Medical Society of the State of Pennsylvania is a large and influential body, and it is an honor to any one of its members to be put on the program. It should be considered a privilege to use the society as a mouthpiece. A place on the program, then, involves an obligation on the part of the member to be present to take his place. That so many of our members forgot this obligation is deplorable. Further, if they will realize the position in which they have placed the society and the disappointment of members who go to a meeting to hear one particular paper, perhaps, they will appreciate how important it is to be faithful to this responsibility. Attendance is therefore obligatory, unless it becomes a physical impossibility to be present.

Medical men, as a rule, keep their appointments strictly and on time, because they recognize the necessity for the conservation of their own and their colleagues' time and convenience; assignment on the program is a positive appointment. The failure to appear flouts the society and must be considered a discourtesy. The dignity of the society and the self-respect of its members is impaired by such delinquency.

J.

THE CONFERENCE OF SECRETARIES

The Conference of Secretaries this year was of unusual interest. The attendance was smaller than some times but the papers were well adapted to promote greater effort on the part of those present to increase the efficiency of the membership of the county societies; for it is generally recognized that the success of these societies depends more upon the work of the secretary than upon that of any other member of the society, and great care should be used in selecting this official. While this is true he can do but little without a cordial cooperation of the members generally.

The address which described the difficulties of the Luzerne County Society in getting a home of its own and the success that was attained after great trials was of especial interest. We believe that no money expended by the state society yields better results than the small amount applied to meeting the expense of this Conference. W. T. S.

BULLETIN EXCERPTS

Bulletin, Clearfield

Expert Medical Men Needed.—We have the anomalous condition of having only surgeons in our hospital towns, and only medical men elsewhere. The hospital needs good medical men as much as it needs good surgeons. The fees for good medical service should be commensurate with those of the surgeon. There are fields of medical practice not yet developed, why should not some try to take up and develop one of these particular departments along with his general work? We have here in our midst wonderful possibilities for post-graduate work. There is a great need, however, for the high specialized internist because the greater number of patients require the attention which he alone can give. Let us plan for work along these lines as a part of the work of our county society.

The Roster, Columbia

Censorial Meeting.—The thirteenth annual meeting of the Seventeenth Censorial District was held in the Court House, Danville on Friday, Sept. 1, 1916. The meeting was called to order for the morning session by Dr. E. M. Miller of Snyder county, the retiring president. An address of welcome was delivered by Dr. J. S. Hammers, president of the Montour County Medical Society, and response to same was made by Dr. J. T. Macdonald of Bloomsburg and Dr. R. W. Johnson of Selinsgrove. The following named officers were elected: president, Dr. C. H. Swenk, Sunbury, and Dr. L. B. Kline, Catawissa, secretary. Dr. Swenk then took the chair. There were forty-one members of the profession present, the counties being represented as follows: Montour 17, Columbia 10, Northumberland 7, Snyder 5. There were also present Drs. J. S. Wood of Milwaukee, and E. J. G. Beardsley of Philadelphia. Dinner was served at the Montour House, after which the visiting physicians visited the Geisinger Memorial Hospital. The afternoon session convened at 2 o'clock, with Dr. Swenk presiding. Dr. J. W. Bruner read a paper on "Some Phases of Surgery," an able and practical discussion. The discussion was continued by Dr. George W. Reese, superintendent of the State Hospital at Shamokin and Dr. H. L. Foss, superintendent of the Geisinger Hospital, Danville.

Academician, Dauphin

Scranton Session.—The meeting of the Medical Society of the State of Pennsylvania at Scranton, was a grand success and one that will not be forgotten for some time. Good hosts, these Scranton boys. Now that we are going to have a new hotel, we can return the compliment in two years. They want to come. That desire has been expressed so use your influence for a new and modern building so we can properly accommodate them.

Call and Roster, Franklin

Medical Cooperation.—In the immediate future the medical profession of our county will have a number of very important problems to work out. Problems of great importance both in the interest of the people and the profession. Thus, there is the greatest need for earnest, full and faithful cooperation on the part of every true practitioner of medicine. The profession is in need of more complete organization. The system of county, state and national organization is practical; what is needed is a fuller cooperation of every physician in the economic and fraternal betterment of the profession. Every physician who stands isolated is against the welfare of his profession and against his own interest. Besides the interest of the present generation it is working injury to the welfare of generations of medical practitioners to come. Let us all resolve and become more earnest in our profession and let those who are yet out of the organized profession get in, make themselves deserving and eligible as members of a noble profession. You will thus add to your own power for the welfare of your clientele and also help make the organization more useful to the human family.

Bulletin, Westmoreland

Scranton Session.—More than 600 physicians registered. They came from every section of the state and represented approximately 10 per cent. of the association's membership. The weather could not have been more pleasant. Everybody wore a smile and were greeting their friends. While we in attending these meetings are not entirely away from our professional work, it offers us a little diversion and we renew old acquaintances. The profession of the Lackawanna County Medical Society certainly had everything arranged very nicely for the affair. Scranton is a little city worth seeing.

BOOKS RECEIVED

Medical and Surgical Reports of the Episcopal Hospital, Philadelphia. 356 pages; illustrated. Philadelphia: Press of William J. Dornan, 1915.

Fifty Years of Manufacturing Pharmacy and Biology. Jubilee Souvenir, giving a brief history of the house from 1866 to 1916. Detroit: Parke, Davis & Company.

The Control of Hunger in Health and Disease. By Anton Julius Carlson. 320 pages. Illustrated. The University of Chicago Press, Chicago, Ill. Price, $2 net.

A Textbook of Human Physiology, Including a Section on Physiologic Apparatus. By Albert P. Brubaker, A.M., M.D., Professor of Physiology and Medical Jurisprudence in the Jefferson Medical College; Formerly Professor of Physiology in the Pennsylvania College of Dental Surgery; Formerly Lecturer on Physiology and Hygiene in the Drexel Institute of Art, Science and Industry. Fifth Edition, revised and enlarged, with one colored plate and 359 illustrations. Philadelphia: P. Blakiston's Son and Company. Price, $3.00 net.

A Practical Treatise on Disorders of the Sexual Function in the Male and Female. By Max Hühner, M.D., Chief of Clinic, Genito-Urinary Department, Mount Sinai Hospital Dispensary, New York City; Formerly Attending Genito-Urinary Surgeon, Bellevue Hospital, Outpatient Department, and Assistant Gynecologist, Mount Sinai Hospital Dispensary, New York City; Member American Urological Association, American Medical Association, New York Urological Association, Fellow of the New York Academy of Medicine, etc. Philadelphia: F. A. Davis Company, 1916. Price, $3.00 net.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics, Materia Medica and Diagnosis in the Jefferson Medical College, Philadelphia. Assisted by Leighton F. Appleman, M.D., Instructor in Therapeutics, Jefferson Medical College, Philadelphia. Published quarterly by Lea and Febiger, 708 Sansom St., Philadelphia. Subscription price, $6.00 per annum. September, 1916. Contents: Diseases of the Thorax and Its Viscera, including the Heart, Lungs and Blood Vessels, by William Ewart, M.D., F.R.C.P.; Dermatology and Syphilis, by William S. Gottheil, M.D.; Obstetrics, by Edward P. Davis, M.D.; Diseases of the Nervous System, by William G. Spiller, M.D.; Index.

BOOK REVIEWS

THE CLINICS OF JOHN B. MURPHY, M.D., at Mercy Hospital, Chicago. Volume V, Number 4 (August, 1916). Philadelphia and London: W. B. Saunders Company, 1916. Price per year, Paper, $8.00; Cloth, $12.00.

We have received with much interest the August number of Murphy's Clinics as we assume that it is the last issue to be made under the personal direction of this great teacher and originator. We feel that these Clinics have a real place and we hope that they will be continued by whoever succeeds Murphy. We do not expect anyone to replace him.

The subjects treated in this volume are: Melanotic Neoplasm in Digastric Muscle, Mixed Tumor of Parotid Salivary Gland, Bony Ankylosis of Temporomandibular Joint, Retraction of Eyeball, Trifacial Neuralgia, Luxation of Cervical Spine at Atloaxoid Joint, Traumatic Recurrent Subluxation of Fourth Lumbar Vertebra, Tuberculosis of Spine, Fracture of Humerus, Ancient Fracture of Elbow Joint with Ankylosis, Postscarlatinal Arthritis of Elbow, Tuberculosis of Elbow, Cicatricial Fixation of Ulnar Nerve from Ancient Cubitus Valgus, Ancient Ununited Fracture of Radius, Ancient Luxation of Metacarpophalangeal Joint, Occult Carcinoma of Breast with Metastases to Cervical and Mediastinal Lymph-Nodes, Sarcoma of Sternum, A Series of Sixteen Illustrations Showing Certain Phases of Gallbladder Surgery, Biliary Calculus Impacted at Ampulla of Vater, Subperitoneal Streptococcic Cellulitis, Nonfusion of Uterine Segments of Mullerian Ducts, Ureteral Calculus, Sarcoma of Ileum, Ancient Fracture of Rim of Acetabulum, Luxation of Hip Joint, Ancient Bony Ankylosis of Hip Joint, Extensive Trochanteric Bursitis, Bone Infections Metastatic to Furuncles, Traumatic Intramuscular Ossification. J. M. W.

DIAGNOSIS AND TREATMENT OF SURGICAL DISEASES OF THE SPINAL CORD AND ITS MEMBRANES. By Charles A. Elsberg, M.D., F.A.C.S., Professor of Clinical Surgery at the New York University and Bellevue Hospital Medical College. Octavo of 330 pages, with 158 illustrations. Philadelphia and London: W. B. Saunders Company, 1916. Cloth, $5.00 net.

One most always welcomes good textbooks of the monograph type dealing with a special subject from the standpoint of a widely experienced expert. The book by Dr. Elsberg is one of these. Surgical diseases of the spinal cord are from time to time encountered by every surgeon and practitioner and on such occasions Dr. Elsberg's book will be of great assistance. The first few chapters deal with the anatomy, physiology, methods of examination including Roentgen ray, and differential diagnosis. The operation of laminectomy is very carefully described. We are pleased to see that the author still advises the old-fashioned removal of bone by forceps rather than the newer plastic anatomical feats. Division of the posterior roots for pain and gastric crises is properly spoken of with much caution. The author feels a little more confidence evidently in Foerster's operation for spastic paralysis in well selected cases. Chapters on spina bifida tumors and the inflammatory diseases of the cord finish a very complete treatise. The book is all that could be desired from a publisher's point of view, although we do not see why a dozen or more full pages should be wasted with illustrations of very ordinary bone instruments. J. M. W.

THE NATIONAL FORMULARY, Fourth Edition. By Authority of the American Pharmaceutical Association, Prepared by the Committee on National Formulary of the American Pharmaceutical Association. Official from Sept. 1, 1916. Octavo; xl + 394 pages; muslin, $2.50; buckram, $2.75; buckram, interleaved, $4. Published by the American Pharmaceutical Association, 1916. 415 North Thirty-Third Street, Philadelphia.

"The scope of the present National Formulary is the same as in previous issues, and is based on medical usage rather than on therapeutic ideals. The committee consists entirely of pharmacists, or of men with pharmaceutical training, and it cannot presume either to judge therapeutic practice or to follow any particular school of therapeutic practice. The question of the addition or deletion of any formula was judged on the basis of its use by physicians and its pharmaceutical soundness. The considerable use by physicians of any preparation was considered sufficient warrant for the inclusion of its formula in the book, and a negligible or diminishing use as justifying its exclusion."—From the Preface.

"Those who have become familiar with the National Formulary by using its earlier editions will not recognize the present volume, at first glance. The book has taken on portly dimensions and its printed page bears a much more striking resemblance to that of the eighth revision of the Pharmacopeia than it does to the edition of the National Formulary now official. And not only does the page bear this striking resemblance, typographically, to that of the eighth revision of the Pharmacopeia, but the text is in many instances almost identical, the National Formulary having become the residuary legatee of the old Pharmacopeia." —From *The Druggist Circular*.

"As a whole, the present edition of the National Formulary, like its predecessors, is 'pharmaceutically useful but not a therapeutic necessity.' To say that it is not a therapeutic necessity is to state the matter mildly, since most of the formulas and almost all of the drugs described have been discarded long since by rational therapeutists. So long as there are physicians who prescribe therapeutic monstrosities, however, the druggist should have the aid that is furnished by this book in compounding them. From the pharmacist's point of view, therefore, the book is a valuable one. Physicians who have a scientific training in the pharmacology of drugs will not want it; others will be better off without the temptations offered by its many irrational formulas."—From *Jour. Am. Med. Assn.*

The National Formulary is now under the food and drugs act, on the same official basis as the U. S. Pharmacopeia, but it is to be hoped that our physicians will use the latter in their dispensing and prescribing. S.

THE TRUTH ABOUT MEDICINES

NEW AND NONOFFICIAL REMEDIES

Solution of Hypophysis-Squibb.—A sterilized, aqueous solution of the water-soluble active principles of the posterior lobe of the pituitary bodies of cattle, free from chemical preservatives and physiologically standardized. It has the properties of the pituitary gland, as described in New and Nonofficial Remedies, 1916. E. R. Squibb & Sons, New York (*Jour. A. M. A.*, Sept. 2, 1916, p. 745).

Benzidine.—In medical practice benzidine is used for the detection of occult blood. In the presence of hydrogen peroxid and acetic acid, benzidine is changed to a deep purple compound by the action of blood. The test is said to detect blood in a dilution of 1 in 300,000.

Benzidine-Merck (For Blood Test).—This complies with the standards prescribed for benzidine, N. N. R. Merck and Co., New York (*Jour. A. M. A.*, Sept. 16, 1916, p. 879).

Occult Blood Test (Dudley Roberts).—This consists of tablets each containing 5 grains of a trituration of benzidine, 1 part, and sodium perborate, 20 parts, and glacial acetic acid (supplied in boxes containing 100 tablets in vials, and a bottle of glacial acetic acid). A tablet is treated with a weak solution of the material to be tested and a drop of acetic acid added, a greenish blue color indicates the presence of blood. E. R. Squibb & Sons, New York (*Jour. A. M. A.*, Sept. 16, 1916, p. 879).

Mercurial Oil.—A mixture containing from 40 to 50 per cent. of metallic mercury in an oily base. The mercury is in a finely divided state and of a consistence which permits its intramuscular injection by means of a proper syringe at room temperature. The degree of subdivision of the mercury should be indicated for each brand of this product. Mercurial oil is used as a means of obtaining the systemic effects of mercury. Cumulative effects should be carefully watched for.

Mercurial Oil-National Pathological Laboratory.—A mixture of equal weights of mercury and lanolin obtained by triturating the constituents until mercury globules are no longer macroscopically visible. It is marketed in graduated syringes ready for use and containing 2 Cc. National Pathological Laboratories, Chicago (*Jour. A. M. A.*, Sept. 23, 1916, p. 953).

Liquid Petrolatum-Squibb, Heavy (Californian).—It is made from Californian petroleum and is claimed to be composed chiefly of hydrocarbons of the naphthene series. A brand of liquid petrolatum complying with the U. S. P. standards for liquid petrolatum and claimed to be superior to liquid petrolatum, U. S. P. E. R. Squibb & Sons, New York (*Jour. A. M. A.*, Sept. 23, 1916, p. 953).

Thromboplastin-Squibb.—A solution of brain extract complying with the standards for solution brain extract, N. N. R. It is marketed in 20 Cc. vials. E. R. Squibb & Sons, New York (*Jour. A. M. A.*, Sept. 23, 1916, p. 953).

Chlorazene. — Chlorazene (sodium para-toluenesulphochloramine) is an active germicide acting much like hypochlorites, but being less irritating. Like the hypochlorites it has the advantage over mercuric chloride, zinc chloride, etc., in that it does not coagulate or precipitate proteins, such as blood serum. Chlorazene is reported to be practically non-toxic. The Abbott Laboratories, Chicago (*Jour. A. M. A.*, Sept. 30, 1916, p. 1021).

PROPAGANDA FOR REFORM

The U. S. Pharmacopeia, IX.—The ninth revision of the U. S. Pharmacopeia became official Sept. 1, 1916. It is a book of standards for drugs, but it is not a book of standard drugs. The pharmacopeia includes substances which have been shown to be inert like the hypophosphites, complex and obsolete mixtures like the compound syrup of sarsaparilla, and drugs which have been tried and found wanting like saw palmetto berries. There is one great advantage in specifying U. S. P. preparations: to do so, is to invoke legal standards of identity and purity. The only way to be sure of obtaining substances of therapeutic efficiency, however, is to exercise discrimination; the pharmacopeia is no guide to therapeutically valuable drugs (*Jour A. M. A.*, Sept. 2, 1916, p. 750).

The New National Formulary.—The National Formulary, 4th edition, became official September 1. It is published by the American Pharmaceutical Association. The preface says frankly: "The scope of the present National Formulary is the same as in previous issues, and is based on medical usage rather than on therapeutic ideals. The committee consists entirely of pharmacists, or of men with a pharmaceutical training, and it cannot presume either to judge therapeutic practice or follow any particular school of therapeutic practice. The question of the addition or deletion of any formula was judged on the basis of its use by physicians and its pharmaceutical soundness. The considerable use by physicians of any preparation was considered sufficient warrant for the inclusion of its formula in the book, and a negligible or diminishing use as justifying its exclusion." The National Formulary contains a large number of formulas for preparations which in the main are complex and superfluous. From the pharmacist's point of view, the book is a valuable one. Physicians who have a scientific training in the pharmacology of drugs will not want it; others will be better off without the temptations offered by its many irrational formulas (*Jour. A. M. A.*, Sept. 2, 1916, p. 764).

The Hypophosphite Fallacy.—The Council on Pharmacy and Chemistry reports that the introduction of hypophosphites into medicine was due to an erroneous and now discarded theory as to the cause of tuberculosis and the properties of the hypophosphites. After a review of the literature and in view of experimental work the Council concludes that there is no warrant for the use of hypophosphites in medicine, unless it be to secure the calcium effect from calcium hypophosphite and the ammonium action of ammonium hypophosphite. The Council reviews the claims made for the following and declares them ineligible for New and Nonofficial Remedies: Fellows' Syrup of Hypophosphites, Fellows Medical Mfg. Co., Syrupus Roborans (Syrup Hypophosphites Comp. with Quinin, Strychnin and Manganese), Arthur Peter and Co., Schlotterbeck's Solution Hypophosphites of Lime and Soda (Liq. Hypophosphitum, Schlotterbeck's), The Schlotterbeck and Foos Co., Robinson's Hypophosphites, Robinson-Pettet Company, Eupeptic Hypophosphites, Nelson, Baker and Co., McArthur's Syrup of the Hypophosphites Comp. (Lime and Soda), The McArthur Hypophosphite Co. Though in general no therapeutic claims so far as the hypophosphites are concerned are made for the following, the Council held their use irrational and directed their omission from New and Nonofficial Remedies which now describes them: Borcherdt's Malt Olive with Hypophosphites, Maltzyme with Hypophosphites, Maltine with Hypophosphites and Maltine with Olive Oil and Hypophosphites (*Jour. A. M. A.*, Sept. 2, 1916, p. 760).

Secretogen.—The Council on Pharmacy and Chemistry has reported that commercial secretin preparations examined (Secretogen and Duodenin) contained no secretin and also that secretin is inert when given by mouth. While practically admitting the correctness of the Council's findings, the manufacturer of Secretogen (The G. W. Carnrick Co.) in a letter to the Council sets forth the company's claims for secretogen on a new and altogether improbable basis. Since the arguments are purely speculative, the Council reaffirms its previous action declaring this preparation ineligible for New and Nonofficial Remedies (*Jour. A. M. A.*, Sept. 9, 1916, p. 828).

Arsenobenzol and Diarsenol.—The Council on Pharmacy and Chemistry reports that it found Arsenobenzol, made by the Dermatological Research Laboratories, Philadelphia Polyclinic, Philadelphia, and Diarsenol, made by the Synthetic Drug Company, Toronto, Canada, substantially identical with salvarsan in composition, and equal to salvarsan in therapeutic efficiency. The Council reports that these products have not been admitted to New and Nonofficial Remedies because there is a doubt as to the legality of their sale in the United States. But for this doubt as to their legal status, both products would be entirely eligible to N. N. R. (*Jour. A. M. A.*, Sept. 16, 1916, p. 879).

Mark White Goiter Treatment.—The Council on Pharmacy and Chemistry reports that Mark White Goiter Serum and Mark White Iodinized Oil, submitted by the Mark White Goiter Serum Laboratories, Chicago, was not admitted to New and Nonofficial Remedies because the sale in interstate commerce of the "serum" has not been authorized by the Treasury Department, because the statements regarding composition are indefinite and contradictory, because the therapeutic claims were not substantiated and because the routine treatment of goiter is irrational. Mark White is a veterinarian and, in association with various physicians, has exploited his treatment, at one time called "Goiterine" from different cities. In Chicago he has been associated with Dr. Rachel Watkins (*Jour. A. M. A.*, Sept. 23, 1916, p. 967).

The Therapeutic Value of the Glycerophosphates.—In view of the very convincing evidence that the glycerophosphates do not possess the therapeutic properties attributed to them and are not superior to ordinary phosphates, the Council on Pharmacy and Chemistry examined the following proprietary glycerophosphate preparations: Tonols (Schering and Glatz) comprising Iron, Lime, Lithium, Magnesium, Manganese, Potassium, Quinine, Sodium, and Strychnine "Tonols," Duotonol Tablets, Triotonol Tablets, Quartonol Tablets, Sextonol Tablets, Phosphorcin Compound (Eimer and Amend), Robinol (John Wyeth and Bro.), Phosphoglycerate of Lime (Fougera and Co.), Elixir Glycerophosphates, Nux Vomica and Damiana (Sharp and Dohme). The Council reports that unwarranted therapeutic claims are made for all of these preparations. In addition the composition of Robinol and Elixir Glycerophosphate, Nux Vomica and Damiana is semi-secret, and Tonols, Phosphorcin Compound and Robinol bear objectionable names (*Jour. A. M. A.*, Sept. 30, 1916, p. 1033).

Kora-Konia.—Kora-Konia is a dusting powder advertised to the medical profession by the "House of Mennen." It is claimed to be indicated in the treatment of acne, dermatitis, eczema, intertrigo, etc., and is said to possess germicidal qualities. The A. M. A. Chemical Laboratory reported that the powder essentially consists of talcum and zinc stearate in about equal proportions to which small quantities of magnesium carbonate and boric acid have been added. The Council on Pharmacy and Chemistry believes that the extravagant and unwarranted therapeutic claims made for this simple dusting powder are likely to lead the public, as well as the thoughtless physician, to place unwarranted confidence in it and therefore declared Kora-Konia ineligible for New and Nonofficial Remedies (*Jour. A. M. A.*, Sept. 30, 1916, p. 1034).

Glyco-Thymoline and Poliomyelitis.—The manufacturers of Glyco-Thymoline are circularizing physicians, advising dependence on Glyco-Thymoline as a preventive against poliomyelitis. A report of the Council on Pharmacy and Chemistry pointed out that this preparation is simply a weak antiseptic, so feeble that even in full strength it does not kill *Staphylococcus aureus* in four hours and is of little, if any, greater therapeutic value than sterile salt solution (*Jour. A. M. A.*, Sept. 16, 1916, p. 895).

COUNTY SOCIETY REPORTS

CHESTER — SEPTEMBER

The Chester County Society, September 12, held one of the largest attended monthly meetings in its history. The meeting was held in the Chester County Hospital and members from every town in the county were present. It was called to order by President Charles H. Stone, with Secretary Scattergood in his accustomed place.

The action of the Board of Health of West Chester, relative to refusing to allow further contagious diseases to be brought to the Chester County Hospital's contagious ward, was discussed. Many of the physicians spoke on the subject and the majority seemed to feel that the board of health was too drastic in its movement as the figures submitted showed that several hundred cases of diseases of a contagious nature had been treated in the ward and not one case of contagion had resulted.

In view of the discussion the society passed the following minute expressing disapproval of the action of the board of health:

"In a general discussion of the subject of infantile paralysis at the meeting of the Chester County Medical Society, held Sept. 12, 1916, the wisdom of the local quarantine now in force in several of the towns of the county was questioned and the general opinion was that this quarantine is useless and unnecessary. While we fully believe in the isolation and quarantine of the individuals affected and of those exposed to contagion, we believe that the quarantine instituted by the local board of health and enforced by guards at the entrance of towns does not fulfill the purpose for which it is intended and does not justify the expense and annoyance involved.

"It is reported to the society that the West Chester Board of Health has forbid the admission to the town of certain contagious diseases. While we believe that the reported action of this board was intended to protect the town and while the contagious ward of the hospital was not mentioned in the resolution of the board, the effect of such action would be to destroy the usefulness of the contagious ward which was established and is maintained by the people of the entire county and neighborhood. The impropriety of such action is shown by the fact that while the contagious ward has been in existence fifteen years and has treated several hundred cases of contagious diseases, there is no evidence that any disease whatever has been transmitted to any one in the neighborhood of the hospital or to any one in another department of the institution. There can be no doubt that the maintenance of this ward has resulted in limiting the spread of contagious disease in the county and in the town of West Chester, and has proved a most efficient and desirable protection to the public, thus aiding to fulfill the beneficent purpose of the management of the Chester County Hospital."

The members then listened to an interesting clinic delivered by Dr. Müller on surgical operation and a medical clinic delivered by Dr. Austin of Philadelphia. Both addresses proved of much value and interest to the physicians.

Case 1.—Woman, eight years ago had considerable pain in appendical region; chills, fever and sweat; pain in the epigastrium sharp and constant relieved on the ingestion of food; urinary findings negative; stomach findings, hydrochloric acid, no lactic acid. Roentgen-ray examination showed marked ptosis of stomach and colon. Diagnosis: Ptosis of stomach and colon and a chronic appendicitis with adhesions. Medical treatment: Small repeated feedings and absolute rest after meals, with the wearing of a properly fitting belt.

Case 2.—Child 3 years of age, with marked edema of the face, extremities and abdomen. Liver below the costal margin. Blood: Eosinophilia; marked leukocytosis, 40,000. Urine: Specific gravity, 1.012 to 1.016. Diagnosis: Acute nephritis with edema.

Case 3.—Typhoid fever with a complicating infection of the submaxillary gland, which is very unusual as the parotid is the gland most frequently involved; and also an associated periostitis of the femur. Treatment: Free incision with curretment of the bone.

Case 4.—Nephritis, glomerular type. A great deal of experimental work has been done along this line; that is, stripping the capsule of the kidney, with a small percentage of cures. Dr. Müller has operated on four cases with no fatality, one brilliant result, one improved, one *status quo*, and one no improvement.

Dr. Müller also spoke of a recent method of treatment of carcinoma of the cervix by the use of the cautery and then packing with radium, but the operations have been so recent that he is yet unable to state what the results may be.

At the conclusion of these discussions the members were invited to the dining room, where luncheon was served, after which the meeting adjourned, it being one of the most active gatherings the society has had for some time past.

D. Edgar Hutchison, Reporter.

DELAWARE — SEPTEMBER

The Delaware County Society met at the Alpha Boat Club, Chester, September 14 at 3:30 p. m.

Dr. G. V. Janvier read a paper on "Infantile Paralysis," which quoted the best authorities, covered the subject in minute detail and was highly interesting. Dr. Robert Kilduffe was called on for a short talk on the pathological aspects of the disease. Dr. Maurice Ostheimer, in discussing, stated that both immune and normal serum is being used with good results. Formin is now being used very little if at all. As to aseptic precautions, very dilute nasal sprays of argyrol are used, also gauze nose and mouth guards. These precautions even are being discontinued. Dr. J. W. Wood concludes that in the preparalytic stage it is next to impossible to make a certain diagnosis. Dr. S. R. Crothers reported having seen a case simulating infantile paralysis, which on closer examination, aided by a radiograph, proved to be a femoral fracture. Where a history of a previous fall is obtained, this is to be borne in mind.

At the close of the meeting, which was well attended, an appetizing luncheon was served on the boat deck of the club.

W. E. Egbert, Reporter.

ERIE — SEPTEMBER

The Erie County Society met at the Public Library, Tuesday evening, September 12, President Roth presiding. Many members had just returned from summer vacations, refreshed and invigorated for the coming year's work. Dr. O. M. Shreve, chairman of the University Club Affiliation Committee, reported progress in the work of completing the handsome clubhouse now nearly ready for occupancy, in which the library of the medical society will be housed and the society meet hereafter.

In scientific session the society was addressed by Dr. Carl Hamann of Cleveland, Ohio, of the Western Reserve University, on "Surgery of the Large Intestine." The speaker's concise and lucid style enabled him to present a most admirable discussion of a subject of great magnitude and increasing importance. Dr. Hamann cited many cases difficult of diagnosis and interesting in progress. In his discussion of methods, he argued in favor of lateral anastomosis instead of end-to-end, in cases where resection of a portion of the large intestine is indicated. The paper was discussed by Drs. Eastman, Chaffee and Hess, each of whom reported interesting cases.

F. M. Flynn, Reporter.

LEBANON — SEPTEMBER

The Lebanon County Society met September 12, at 3 p. m., in the Courthouse, with Dr. J. C. Bucher in the chair.

Dr. H. E. Maulfair read a paper on "Acute Gastroenteric Intoxication." In searching for the causes of this common malady he decided on improper hygienic conditions and constitutional predisposition as the two important factors. The subject was divided into two groups, (*a*) simple form, covering the less serious cases, (*b*) true cholera infantum. There is no distinct boundary between the two, and the simple form under improper treatment can readily assume the dangerous stages of the second. The prostration in the first class may be great at first but in a day or two convalescence begins and recovery ensues. In the second group, however, the initial prostration is severe and remains so. The stools are numerous, pain severe, vomiting constant, temperature elevated and the case is desperate. Dr. Maulfair believes that if the patient can live through the first five days he is on the safe road to recovery. He strongly urged prophylaxis and said that the seaside homes and fresh air movement in New York City did more to save lives from this disease than medicine. The treatment covers the question of rigid diet, frequent bathing, perfect hygiene and medicine, the last playing a somewhat minor rôle.

Dr. D. M. Rank opened the discussion and promoted the use of oleum ricini. Buttermilk, turpentine, salol, cinnamon, opium, bismuth, salicylate of sodium and lime water all had their exponents.

George R. Pretz, Reporter.

YORK — SEPTEMBER

The York County Society met in the parlors of the Colonial Hotel on September 14, at 1:30 p. m. President Melsheimer after the routine business introduced Dr. Solomon Solis-Cohen, professor of clinical medicine of Jefferson Medical College, who devoted the afternoon to a medical clinic.

The cases had been selected from which Dr. Cohen might demonstrate, differentiate and discuss the treatment of the different arthrites, blood dyscrasias and cardiorenal conditions. He held his audience, which was one of the largest we have had, till late in the afternoon. He dwelt particularly on those methods of treatment which his long and extensive clinical experience has proved most dependable and beneficial for the different diseases.

Dr. Cohen was given a rising vote of thanks and unanimously elected an honorary member of the society. We were honored to have with us as guests a delegation of eleven members of the Montgomery County Society, who had motored from Norristown to York.

C. L. Haines, Secretary *pro tem.*

Temperance in Our Colleges.—The senior class of New York University voted for plain water as their favorite beverage. After the graduating class of Columbia University had finished the exercises of their day, which included singing the "Columbia Drinking Song," they went over to Furnold Hall and had—tea! There are two pieces of evidence as to how the modern college man, surrounded by the temptations of our hugest city, sizes up the booze problem. We don't know what Peoria's Board of Trade will say, but it certainly looks like sense to us.—*Collier's.*

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ORIGINAL ARTICLES

STATE CARE OF INDIGENT INSANE

BY CHARLES W. BURR, M.D.
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PHILADELPHIA

(Read at the General Meeting of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 19, 1916.)

That the indigent insane should be treated and cared for needs no argument; it is axiomatic, yet large numbers of the mentally diseased are neglected. No state in the United States gives proper treatment to all the insane within its borders. Pennsylvania does better than some, indeed, than many other states, but it leaves much undone. Provision should be made for the treatment and care of every insane person. Every physician knows that this is not the case, that the heads of public hospitals are often compelled, on account of overcrowding, to put every obstacle in the way of the admission of new patients. I do not blame them for this; rather I praise them and wish they could keep the number of patients under their care down to the proper limit because then perhaps the citizens would be awakened to the real condition of affairs and would be willing to have their taxes spent for the care of the insane. The citizens of Pennsylvania, indeed, of the whole country, have failed in their duty. We have become so absorbed in the "uplift," so devoted to the new morality, so theoretically altruistic that we fail to see many of our real duties, one of which is properly to care for those who by reason of mental illness can not care for themselves.

Putting to one side the question of our moral duty to protect and maintain people stricken by disease and looking at the question from the lowest, the money, viewpoint, it would be to our financial interest to take care of the insane because if we do not, if we neglect them, the cost to us will be much greater. The insane at large and uncared for cost the community more than if treated in proper institutions because the injury to the state and nation by the increase in degeneracy, brought about by permitting the insane to procreate, is incalculable and the property loss each year resulting from insane acts is very large. Therefore, the care of the insane is not merely a medical question; it is a sociological, an economic question. Wrongly handled it costs the community far more (again I am speaking of money cost, the cost in national degeneracy can not be estimated) than if rightly handled. The neglected insane unconsciously wreak vengeance on the sane by their destructive and sometimes criminal conduct and by increasing the degenerate class in the coming generations. Really, there is no more important question in the whole domain of sociology than the prevention of insanity and the care of the insane. In a commonwealth free from insanity crime would be less, and more important still, there would be freedom from the crazy leaders of the people who, having the gift of gab, hypnotize the sane but weak and lead them into political, religious and sociological movements which cause serious injury to the state. We in America have had in recent years many sad experiences of the results of political and religious paranoiacs holding positions of more or less power.

For many reasons then it is vitally important that the insane should be properly cared for and the purpose of this paper is to endeavor to arouse the interest of the physicians of Pennsylvania so that they will take a really active part in the matter; not merely passively to agree that one or the other is the proper method of handling the problem but to take an active part, to influence their lay friends and to influence our legislators to pass and enforce wise laws. Admirable as physicians as a class are, and notwithstanding the good they do by their individual acts, they do not unitedly take their proper place and share in guiding legislators in medical matters of public importance. That is one reason why state assemblies pass so many unwise laws concerning medicine and morals. Members of the state assembly would welcome the advice of medical men on medical questions but physicians, especially those of the better class, are too prone to assume an air of aloofness. Further, I wish to convince you that the proper way to settle the question of the care of the insane is for the state to assume the entire burden and control.

At the present time there are in the United States three methods of caring for the indigent insane. First, county care, second, combined county and state care, and third complete state control. Which of the three methods is best for Pennsylvania? At the present time we have combined state and county care. That is to say, some counties have hospitals of their own which in greater or less degree care for the insane, a smaller or larger number of the excess being treated in neighboring state hospitals. Other counties have no local hospitals but treat their insane in almshouses or general hospitals or send them to state institutions. The state hospitals are all overcrowded.

Everyone must agree that adequate provision is not made for the indigent insane in the state of Pennsylvania. In Philadelphia the insane department of the Philadelphia General Hospital (Blockley) has been overcrowded for years. So much so that proper treatment has been out of the question. The wonder is that the administrative and resident medical staffs of that hospital have had as good results as they have had. So great was the overcrowding at one time that it was necessary to refuse to receive new patients for months. The city rulers have finally awakened to the state of affairs and steps are being taken to have a proper institution. By the time it is finished the numbers will have so increased that it also will be overcrowded. A few small and rich counties have institutions which, more or less well, take care of the insane but in several instances local pride has made the citizens believe that things are much better than they really are. The existing state hospitals are all overcrowded and undermanned and it is agreed by everyone that the state must, no matter what else is done, enlarge its activities—build more hospitals and spend more money on the existing state hospitals than it is now doing. So far as my personal opinion goes, I am convinced that state care of the indigent insane is the only efficient way to handle the problem.

Let us first take up the arguments in favor of county care.

1. It is claimed that it is unfair to make the citizens of one county pay for the support of the insane belonging to another county. If this be a just claim as to insanity, it is equally correct as to all other state functions and the state should perform no duties costing money because there is no way of making the local expenditure of state money exactly correspond to the local contribution. Under such a theory as this the state taxes paid by Philadelphia and Pittsburgh should all be spent in those cities. If this policy were carried out the state could not exist long.

2. It is said local conditions vary so greatly as to cost of material, food, etc., that state control would increase the cost of administration; in other words, a local board could get supplies and administer affairs much better and more cheaply than a central board. In answer it may be said that state control does not prevent the existence of local boards.

3. The claim is made that local pride in local institutions results in their being better administered than would be institutions controlled by the state. Now I am entirely willing to admit that there are a few local hospitals for the insane in Pennsylvania which fulfill the requirements of the local community as the local community sees those requirements, but they are very few in number and local pride should give way to the rights of the entire state. Further, the real requirements for the proper treatment of the insane often differ widely from what local communities think.

4. Much stress is laid on the fact that patients in local hospitals can be visited by their relatives and friends, while in state hospitals the distance from home of many patients makes this impossible. This is a valid argument. Car fare and lost time are matters that must be considered in the cost of living of many people. It would work hardship in many cases. I do not go so far as some in answering this argument and say that it is best for patients never to see their relatives. I do maintain, however, that there will of necessity have to be so many state hospitals that it will be rare that a patient's friends will be entirely deprived of visiting him because of the cost.

5. The final argument in favor of county care in the opinion of some people is expressed as follows: "The pauper who is insane has the same claim on the county as the pauper who is not insane." I do not believe that the men who make this statement realize how serious and how erroneous are the implications it contains. They do not realize that many of the insane who must accept free care are not and never have been paupers. They do not realize that unless a man can afford not only to lose his wages while ill but to spend fifteen dollars or more a week for his treatment alone he must accept aid. Now to force these men and women into the pauper class injures them and in consequence injures the state. I have many times

seen families reduced from a self-respecting state to contented pauperism because one of the family had been compelled to go to a pauper hospital and the blow to their self-respect was so great that they never recovered. The one thing we wish to do is to avoid the pauperization of families of the insane.

6. The statement is made that in certain county institutions the cure rate is higher than in the state hospitals. This is absolutely false. As a matter of fact there is no cure rate of insanity. The proper meaning of the word cure is the disappearance of all symptoms, the restitution of all functions to the same level as before the illness and the certainty that the disease will not recur unless an external cause recurs. This rarely happens in insanity. Even in the type of insanity in which more frequently than any other there is restitution of mental function, acute mania, there are always and almost inevitably recurrences. In paresis there may be lucid intervals but there is never recovery; the disease persists in its downward course till death. In the insanity of adolescence there is often apparent cure but inevitably there is recurrence and finally dementia. Even in alcoholic insanity (which pulls up the recorded cure rate in hospitals tremendously) there is usually no permanent cure. The alcoholics who become insane from alcohol are of a type who usually become permanently mentally diseased; even if the manufacture and sale of alcoholic liquors could be entirely stopped the probabilities are they would break mentally sooner or later. Melancholia, from which there is often a permanent recovery, is so different in nature from the other insanities as to put it in a class by itself. Further, it does not greatly increase the hospital population because many of its victims can be treated outside of institutions. The intoxication or exhaustion insanities after fevers, childbirth, etc., are few in number. We may as well face the unpleasant fact that the purpose of treating the insane is not as a rule to cure them but to protect them from harm owing to their condition, to protect the community against them and, at best, to put them in such condition that they can for a time at least resume, more or less, life away from hospital care. The future work will be to prevent insanity by a real system of eugenics—not the newspaper kind.

Assuming as proved the general thesis that the state should assume the entire care of the indigent insane the question arises, should there be any exception; is there any class among the insane who can be better cared for by local authorities? Personally, I believe it would be better for the state to assume entire responsibility in all cases. One class of patients can, however, be properly treated by rich communities (cities and rich agricultural and mining counties). I mean the recent acute cases, because in them the problem is purely medical. This, too, would utilize the already existing buildings owned by counties and would appease the hurt feelings of local patriots who desire to control local institutions, to say nothing of the entirely proper desire to keep salaries at home. But the medical side of the local hospitals must be entirely reorganized and a different spirit prevail than now exists. Every hospital, whether for the sane or insane, ought to be a place for the investigation of disease, not merely a place for the care and nursing of sick people. Those hospitals do most and best for their patients in which the most studying and investigation is done.

The great psychiatric problem is the causation of insanity. That problem can only be worked out by a study of the acutely insane. The work can not be done in the absence of proper laboratories in which are working well-trained men, men trained in methods of scientific research. It can not be done in the absence of trained pathologists. It can not be done by men so wearied by routine duty that they can not think. This is the reason that county hospitals have not added to our knowledge of the causation of insanity. Until we have learned causes we can not have rational treatment. I leave to your judgment whether it would not be wise for the state rather than the counties to control the hospitals for the acutely insane. Whether the acutely ill are cared for by local authorities or by the state, they and the hopelessly demented should not be cared for and treated in the same buildings, not even in the same institution. One trouble in all our large hospitals today is that so much time is taken up by the incurably and hopelessly demented that sufficient time can not be given by the medical officers (all the institutions are medically undermanned) to the acutely ill who, though they may never permanently recover, yet may become well enough to relieve the state of their care for an indefinite time and indeed be at times productive workers. Men suffering from the maniacal diathesis may *e. g.*, between attacks do work of tremendous value to the whole community.

That the criminal insane should be segregated is now admitted by the state itself since it has already established a hospital exclusively for them. It is not large enough to take in all the insane criminals in the state but, with added buildings, that can, and doubtless will, be remedied. Paranoia and mania are the two types of insanity especially prone to lead to crime and paranoiacs and chronic maniacs are among all the insane the most troublesome to handle except possibly the epileptics who also are, if maniacal, prone to crime. Paresis leads to vice more often than to crime and when a paretic is criminal he is more likely to commit a financial or sexual crime than premeditated murder. The insanity of adolescence, when it leads to crime of any kind, usually leads to sexual assault or it may be to murder from insane jealousy. Every insane man who commits a crime and every convict who becomes insane should be sent to the state hospital for the criminal insane. Further, he should be kept there for life if his crime has been the result of, a symptom of, his insanity. It may seem hard to detain for life a man who *e. g.,* in a fit of maniacal fury has committed murder, who has no knowledge or recollection of his act, and who, after a greater or shorter time, seems to have recovered his reason, but these men, no matter how well they may seem to be, are never free from the possibility of a recurrence of their mania and during the recurrence may commit another crime. Surely the state has a right to detain them for life; more, it is its duty. Convicts, who have committed a minor crime, and who, after conviction and while in jail, become insane should be kept in the hospital for the criminal insane until apparent recovery and then be returned to the jail to serve out their sentences, the time in the hospital not being counted. As a matter of fact, in Pennsylvania this is often done.

The question as to how the state should meet the financial problem in caring for all the indigent insane is a difficult and serious one. That Pennsylvania is rich enough to do it no one doubts. The money given to private institutions of one kind and another by the state assembly would help a great deal. I believe that a certain proportion of the income of the state should by law be appropriated for the care of the insane. They should not be at the mercy of the opinion of the legislators every time the assembly meets but automatically a fixed proportion of the state's income should be devoted to them. The percentage of insanity is a pretty constant quantity and there is no reason to suppose that there will be at any time a sudden increase or decrease. Therefore the amount of money needed can be foretold.

There should be a board, appointed by the governor, the assembly or both, the members of which should serve terms of given length. To that board should be left entirely how the money is to be spent. Its members should have complete power; they should be held to strict accountability. They *e. g.* should determine whether a new hospital is needed in any given section of the state and whether already existing hospitals should be enlarged. I believe it would be better for each local hospital to have its own board of managers appointed by the central board to control its local, internal affairs, *e. g.,* buy its supplies, make contracts for additions and repairs, appoint its administrative and medical staffs than to have that done by a central board controlling all the affairs of every hospital. The local boards should, however, be dependent on the central board for money. The medical member of the central board should have authority to decide in doubtful cases whether any given patient needs longer hospital care. The board controlling the insane, the feebleminded and the epileptic should be entirely separate from the board of charities.

May I go a little further and give you my ideas as to what sort of places state hospitals should be? As already said, the acute and chronic cases should be treated in separate institutions. The hospitals for the acutely ill should have corps of well-trained medical men, men born with the scientific spirit and a desire to learn nature's secrets. They should be research workers in the real meaning of the phrase. The hospitals should be small and have proper therapeutic equipment. Hydrotherapy is invaluable but it cannot be given in an ordinary bathtub. Real case histories should be kept, not mere fragmentary notes. Real family histories should be, as they can be, obtained by trained social workers. The hospitals should be whenever possible in large cities.

The big problem is the chronic insane. They should not be herded in tremendous institutions, hundreds sitting about in long corridors—doing nothing, seeing nothing, hearing nothing. The institutions should be small. They should be in the country. They should be real farms. Many of the chronic insane can do some farm work and it is good for them. They can grow vegetables which added to the dietary would be therapeutically useful. Many a chronic maniac is quieted by currying a horse, digging with spade and shovel, milking a cow. These things seem simple, trivial, but they are useful and more important than they sound.

Better spend money on farms than on elaborate buildings.

The state can not undertake the entire care of the indigent insane all at once, in a day. That would be impossible but it can and ought to adopt state care as a permanent policy and then gradually work the whole matter out.

1918 Spruce Street.

DISCUSSION

Dr. Charles H. Frazier, Philadelphia: Dr. Burr has presented a very strong, able and comprehensive plea in favor of the adoption in this state of the general principle of state care for the insane. It remains to me only, with your permission, to emphasize a few of the facts which he has brought out. My interest in this general subject comes chiefly through an official connection with the Public Charities Association, an organization of voluntary membership, which has for its object chiefly the adoption of more efficient methods of caring for the state's dependent people. About three years ago the Public Charities Association made a survey of all the institutions in this state caring for the insane. This work was done at a cost of three thousand dollars or more and the report gives all of the facts relative to the conditions then prevailing and in many instances probably now prevailing. The survey brought out certain facts in reference to the conditions existing in our county institutions; they were in many instances merely adjuncts to almshouses; they were in many instances improperly manned as to medical officers and in more instances perhaps as to proper attendants. There was an absolute lack in most instances of proper facilities and opportunities for the treatment of the insane, so that the county institutions were merely county asylums and not county hospitals in the ordinary sense of the word. Instead, therefore, of caring for and treating the insane as a sick subject, he was merely given custodial care.

The principal arguments advanced against the adoption of state care for the insane, Dr. Burr has already called attention to, are that it is cheaper to care for these people in county institutions, and that the rate of recovery is higher. In reference to the higher rate of recovery said to be obtained in county institutions, those experienced in the treatment of the insane know that the facts stated by the opponents of state care are, in the words of Mr. Sydney Smith, more uncertain than statistics. To say that it is cheaper to care for the insane in county hospitals is a discreditable argument for the state to use against the care of this unfortunate class. Why not go a step farther and say that it is cheaper to care for our insane in the almshouses than in the county hospitals? The fact that it is cheaper carries to my mind the thought that in the county asylum or hospital there are no adequate facilities for proper treatment to which these afflicted subjects are entitled.

Now what is to be done to carry out the plan which Dr. Burr suggests? First of all, I think this organization through its Committee on Public Policy and through its Sub-Committee for the Promotion of More Efficient Laws on Insanity ought to be prepared to introduce certain remedial measures at the next meeting of our legislature. Secondly, the county medical societies, as units of this society, ought to have committees appointed, the members of which will familiarize themselves with the conditions prevailing in their county asylums or almshouses so that they can from first-hand knowledge make proper representations to those representing them in the senate and house. The majority of citizens know little if anything of the unfortunate conditions prevailing in some of our institutions. In some instances they are actually inhuman. And only when the conditions are known to the members of this society will sufficient interest be aroused to help in the passage of corrective legislative measures. It is perfectly apparent to all of us that it would be impossible for the state at one sweep to take under its care all of the insane now in county institutions and almshouses, but a beginning can be made and ought to be made at the next legislature. By way of parenthesis it may be stated that the last legislature appropriated $50,000 for the purpose of securing a site for a new institution in the western part of the state, and the governor instructed the State Board of Charities to prepare for him a statement as to how the state could take over the entire care of the insane.

The Public Charities Association, in cooperating with your Committee for the Promotion of More Efficient Laws on Insanity, propose the following program: (1) Complete the two new state hospitals for the insane, west of the Alleghenies and in southeastern Pennsylvania. (2) Continue the present policy of building up the facilities of existing institutions so that each may be completely equipped for the care and treatment of all classes of the insane within the district. (3) Start colonies not too remote from existing state institutions to admit of speedy transfer from the one to the other, and to be under the direction of the nearest state hospital. (4) Have the state, as occasion opens the way and as rapidly as possible, acquire some of the existing city and county institutions which may be especially fitted for development into state hospitals for the insane. (5) Establish immediately the principle of state care for all the dependent insane in institutions owned and controlled by the state, and do nothing to encourage any extension of the system of city and county care.

This is a practical and feasible program to which there are no serious obstacles either from the financial or legislative viewpoint.

It is a matter of historical record that almost fifty years ago the State Board of Trustees adopted a resolution to the effect "that the Board of Public Charities, having noticed the evils which result from the connection of insane asylums with almshouses, believed it to the best interest of this afflicted class of people and the duty of the state to concur in the establishment by the state within reasonable time of an institution for the maintenance and treatment of all the insane who may not be cared for in private hospitals." It seems to me that a "reasonable time" has elapsed since 1870 and that the state ought now to adopt that general principle.

Dr. Owen Copp, Philadelphia: The problem of the insane and mentally defective is so large and so serious in consequence of neglect that it should command the attention and active interest of every citizen, especially the physician. Primarily, it is a medical matter, relating to disease and defect, which may be prevented, cured or ameliorated. Hence competent medical examination and adequate treatment are not only the right of every mental patient, but good public economy. Such examination and treatment assure effective preventive effort, the largest percentage of cures and the least expensive conditions for care. Adequacy in this direction is the first and indispensable requirement of any system of provision for these classes.

There is increasing recognition of the fact that a sharp line of distinction cannot be permanently drawn between the acute and curable mental patient and the chronic and incurable one. Such distinction may be made in a particular case at a given time and is helpful in classification within an institution, but there is constant interchange of individuals between such groupings and subdivisions, which require keen medical insight and direction to maintain their characteristics. Recurrence of acute symptoms in chronic patients is frequent and necessitates the same treatment as in the acutely ill. Recovery may supervene after long years of mental disorder.

Furthermore in the life of the long-resident mental patient arises the great problem of adjustment of environment, in order that living conditions may approximate the normal as nearly as mental infirmity permits, and adaptation of occupation and diversion may be so appropriate to individual need that life becomes happy and useful within its limitations. This is not the fit task of the lay overseer, almshouse keeper, or county commissioner. They have not been trained to it. The problem is complex and bristles with difficulties which tax to the utmost the resourcefulness of the psychologist, the physician and the teacher.

A further reason, which should accelerate the already strong drift away from a former tendency to remove the chronic insane from the state hospital to the state and county asylum, is the crushing effect upon patient and his friends of the open declaration by such removal, that expectation of cure or release has been dissipated. They see constantly before them Dante's inscription above the gate of the "City Dolent," "All hope abandon, ye who enter in." Such is not the inevitable outcome, but such is the expectation expressed by the act of separation, and the fulness of its meaning is realized with despair by every sensitive patient and relative. The effect is harmful. The attitude toward the patient is wrong, because there is never a time in the life of the mental patient when it is just or expedient to cease hoping and striving for cure or amelioration of condition.

The second imperative requirement of an adequate system of provision for the insane and mentally defective is sufficiency of equipment in men and facilities for scientific investigation and research into the nature, causes and results of mental disease and mental defect in the hope that greater knowledge may discover more effective methods of prevention and treatment.

The great obstacle to progress has been, and is, scarcity of investigators of sufficient scientific instinct, capacity and training and meagerness of facilities and funds for continuous and comprehensive research. The problems presented for solution are no less complex and exacting, no less needful of scientific scrutiny and accuracy of method, no less dependent on many workers in many locations with encouragement of complete equipment and satisfying reward, no less hopeful of benefits to human welfare and relief of suffering, than the problems that have already been solved in other departments of medicine and science, where wonderful accomplishment gives promise of even greater attainment in the future.

The public should be aroused to consciousness of its obligation and self interest in promoting adequacy in this direction. Every institution should be equipped and eager to do its part.

Experience teaches that the state, alone, has provided, or can reasonably be expected to provide, sufficiently for medical treatment and scientific study of these classes, the necessary requisite for prevention and cure of mental abnormality and ultimate reduction in number and expense of mental dependents.

No lesser unit can meet the full responsibility of duties so wide in scope, so varied and specialized in character and so transcendant in disastrous consequences of neglect.

The afflicted of mental disease and mental defect are bereft of self defense and personal liberty, a right safeguarded under every state constitution. They are torn from local ties and friendships, preserved to the physically ill, and, therefore, have superior claim on the state. They are often isolated for life and have greatest need of protection by highest authority.

The so-called economy of local and county care is delusive in that it is a saving by deprivation of sufficient medical attention, facilities for treatment, precautions against secondary infections and reproduction of defectives. The economic folly of such a trend is shown in a situation recently revealed at the Pennsylvania Hospital. The daughter of a syphilitic father, who had died in an insane hospital, was received in the early stages of juvenile paresis, due to inherited syphilis. Investigation found the mother and five brothers and sisters also infected with syphilis, doubtless from the same source, the father. In such a case the absence of the medical and scientific spirit would stop effort with the humane care of the father, but its supremacy would also afford adequate study and treatment to prevent secondary infections and possibly sevenfold increase of expense with untold suffering. Can the state afford, at any cost, to sacrifice the health of its citizens? Is there any real economy in the immediate saving, if such there be, which ignores causes and prevention and invites disaster in the inevitable accumulation of the consequences of neglect?

The motive in local care systems is mercenary. State allowance is usually sufficient to relieve local units of any considerable expense; often actual profit is made out of state payments for the support of mental dependents.

The advocate of county asylum care assumes that mental patients, who do not recover early, pass into fixed and incurable states of chronicity, in which mere vegetative existence is their only need and the limit of justifiable expense. Nothing could be more fallacious for reasons before stated.

The asylum attitude and spirit are depressants, not only to patients and relatives, but to nurses, physicians, even managers. How often are abuses condoned because nothing better could be expected in the care of hopeless cases nor expense of betterment justified? This is stagnation, retrogression, false economy. The asylum field is full of acute problems, urgent in its cry for preventive and constructive effort, rich in reward of such effort by improvement of patients and consequent reduction of the amount and cost of their care. Partial regeneration of nerve centers by reeducation, development of capabilities, not alone of enjoyment, but of productive labor, will, under such a régime, make wonderful contribution to the relief of the public burden. There is no situation in dealing with these unfortunates in which the hopeful, teaching and progressive spirit is not only needed but profitable.

The advocate of county asylum care presents five impressive claims. (1) Smallness of institutions; (2) nearness to friends and relatives of patients; (3) greater variety and abundance of food; (4) less over-crowding; (5) less cost of maintenance than in state hospitals.

Some aspects of these claims have already been reviewed and their validity questioned, but, so far as they are in reality valid, they are important. There is no doubt, however, in my mind, that the extension and development of the colony idea is gradually already matching such claims and, in its complete evolution, will greatly surpass them, and, at the same time, provide necessary medical supervision, separation from paupers and criminals, and inspire constructive and progressive effort.

The essentials of the colony idea are smallness of grouping of patients, their appropriate classification under ordinary conditions of living in homes, their occupation in farm pursuits and useful industries, their location near populous centers of the state, where prospective growth of population may require expansion into hospitals of which the nuclei will have been thus established by experienced boards and superintendents, under sufficient medical supervision, and administered by men and women trained in the hospitals for such care, occupation and home-making.

A grave menace by local care appears in growing callousness to the requirement of first study and treatment in state hospitals, because of the utter insufficiency, as a rule, of equipment in men and facilities in asylums for either diagnosis or application of curative measures.

Historical evolution of the care of the mentally affected has led away from the home, the jail, the town almshouse and the county asylum, up to the state hospital. The course has been tortuous. Progress has often halted at different levels of local care, but always in the end its momentum has pushed forward to state control.

The principle of state care and control of such dependents is generally approved by medical opinion. It is growing in favor with the general public. Experience under its operation in New York, Massachusetts and elsewhere, as a rule, has shown the wisdom of its adoption. Pennsylvania is becoming conscious of its need in this direction.

What can be done to meet it? The problem is medical and will find solution only through thought and action of the medical profession. Its neglect is a menace to mental health and racial soundness in the present and the future. It challenges the physician to discharge his obligation to the public as efficiently in this as in other matters of public health.

Paramount in importance is a right state policy as the adequate foundation on which every future step shall be in advance. Such a state policy may be outlined as follows:

1. Adopt at once the principle of state care, control and support of the dependent insane, feeble-minded and epileptic by prohibiting establishment of any new municipal or county institution for such.

2. Continue present rate of payment for support of such charges in existing municipal and county institutions, provided proper standards of care and treatment are maintained.

3. Relieve municipalities and counties of any payment for the support of such in state institutions.

4. Require first treatment of every dependent mental patient in a state hospital.

5. Remove to a state institution any such patient who is not receiving suitable treatment elsewhere.

6. Provide for the purchase by the state of any existing municipal or county asylum, which is not required for other local purposes and which is adaptable to development into a state institution, whenever the municipality or county desires to make such sale to the state. Issue state bonds in payment for such purchases.

7. Make the necessary extension of state provision for these dependents by: (*a*) perfecting existing state institutions for such afflicted; (*b*) developing into state institutions the asylums which may be purchased from municipalities and counties; (*c*) establishing farm and industrial colonies for such of these classes as may be capable of self help and productive work.

Specifically, every state institution for these classes, when completed, should have:

1. A hospital group for 100 to 150 patients in a location apart but convenient to other groups, planned and organized for the reception of all new admissions and their observation and study previous to classification in other departments; for short, intensive treatment of curable patients; for clinical and pathological examinations and scientific research into the nature, causes and results of mental abnormality, with a view to prevention and improved methods of treatment.

2. Provision for community service as a diagnostic and advisory center for the mentally affected poor in each hospital district; in the diffusion of knowledge of mental disease and mental defect for the information of the public and medical profession to promote early detection of abnormality, its prevention and treatment; in the temporary care of such afflicted pending legal commitment to hospitals; in their after-care when restored by institutional treatment; in the family care of suitable patients capable of self support, wholly or in part.

3. Provision for treatment of incipient and borderline patients.

4. Provision for convalescent patients apart from the insane.

5. Special buildings for classification of disturbed patients in small groups with ample space and facilities for treatment.

6. Infirmaries for the sick and feeble.

7. Provision for isolation and treatment of tuberculosis and other infectious diseases.

8. Houses for the medical staff and other officers; homes for the nurses and others employed, such that living conditions would be natural and comfortable; marriage and maintenance of a family permissible; stability of service encouraged. Present provision for such employees in patients' quarters would be released to increase the capacity for patients.

9. Finally, every state institution should have several farm and industrial colonies, either on the home farm or at a distance as branches near the homes and relatives of patients, in locations near populous centers within the district, where growth of population might require development into complete state institutions.

Such a state policy would gradually solve one of the great problems of the commonwealth by preventive and curative effort, which would eventually reduce the public burden by diminishing the number of such dependents, the amount and cost of their care.

Dr. John A. Lichty, Pittsburgh: I doubt whether many of us here really appreciate the whole problem. We have, in the state of Pennsylvania, from nineteen to twenty thousand indigent insane at present. Of these probably ten or eleven thousand are cared for in state institutions and the rest in county and municipal hospitals; some good, and others not so good.

From this discussion and from the fact that the governor, after the last legislature, asked for an opinion from the State Board of Charities as to whether it would be advisable for the state to take care of all the indigent insane in its own hospitals, we can readily infer that the present plan is not a satisfactory one; that is, that state and county care combined is not giving the results which one would desire. A factor which is continually facing the Committee on Lunacy and the State Board of Charities is the fact that each year there are from five to seven hundred additional insane who have to be provided for. To provide buildings, a place to eat and sleep, in itself is a stupendous undertaking. According to the present rate of furnishing these accommodations it costs from five hundred to four thousand dollars a bed. We might say on an average of fifteen hundred dollars. Multiplying this by seven hundred one would see that the cost for increase of plans is about one million dollars annually. This seems almost a hopeless proposition and one looks eagerly for a way out. One way in which this expense to the state might be cut down is to cure the patients and send them out and thus make room for new insane coming in.

The gentlemen who have presented this subject to us today did not give us much encouragement from the standpoint of cure. In fact, it is generally conceded that the percentage of cures among the insane is relatively small. In our records we have refused to accept the term "cured" but use instead the term "restored."

Another method in dealing with this proposition is that of prophylaxis. Can anything be done to prevent insanity or to reduce the number of insane coming annually to state or county for care? It seems to me in this work the greatest good that can be done at present is to take up the study of insanity or the study of the cases admitted to our care to see whether something can be done in a prophylactic way. In order to do this we must have a good organization, an organization which will compare with the work which is now conducted in our state for the cause of tuberculosis. This would mean intelligent superintendents in the institutions who would direct work which would reach into the family probably for two or three generations and which would follow the patient after he leaves the hospital. With our present organization, it seems impossible to take up a work which will cover the whole state and which would be productive of any results. At present, patients are shifting from county hospitals to state hospitals and back to county hospitals and unless every case can be taken up in a systematic way all efforts in the way of prophylaxis would seem to me futile. This of course will mean additional expense, but in time I am sure the expense to the state would be less than the growing expense which we are facing now annually. It will have to be understood at first that, in order to do this work right, the funds will have to be supplied as in any other work.

It is said by some that the rate of cure is higher in county hospitals than in state hospitals. In going over the state in the past year, I have looked into this matter carefully and think I can very easily explain why this is so.

I find in the county hospitals there are admitted a number of patients who are plain alcoholics. They are sent there because there is no other place available. They are admitted as insane and of course as soon as they are over their debauch they are sent out as "cured." Another class of patients is puerperal insanity. These women come to the hospital every two or three years after confinement and in due time are relieved and go back; after another confinement they are admitted again and discharged as "cured." I have also noticed from the records, that in some county institutions, incurable patients have been allowed to go out and have been marked as "restored." In these patients, either the diagnosis must have been in question or the restoration must be in question. It is probably explained by the fact that inasmuch as these patients are near their families the members of the family persuade the superintendent or housekeeper against his will, telling him that the patient is as well as he ever was and that they can easily take care of him. Under these circumstances the patient will of course be discharged and again marked "restored."

In these three ways, I am sure, the statistics for restorations in the county hospitals could very easily show a greater percentage of restorations than the state hospital where gradually there are more and more of the chronic insane who are incurable.

The entire subject of the care of the insane must be approached in the proper way. In our forestry department those interested in the chestnut blight worked for years to discover a remedy until finally it was the consensus of opinion that by killing all the trees the blight might be overcome. In the matter of the foot and mouth disease we were baffled in the same way and finally concluded that by killing the animals the disease could be eradicated. We could not go at this matter of caring for the insane or curing them in the same way. We must have higher motives and by applying what we have learned through experience and have obtained through scientific research we should endeavor to bring about results even though at first the burden would seem greater to the state than under the present system.

The State Board of Public Charities and its Committee on Lunacy can only suggest what should be done. In order to bring things to pass, it will be necessary for a tremendously popular opinion to exist and it seems to me the medical profession will have to mold and start such an opinion. I hope these papers and this discussion will bring this matter before the members of the profession so that they will see what is their duty.

THE WORKMEN'S COMPENSATION LAW

W. L. ESTES, M.D.
SOUTH BETHLEHEM

(Read at the General Meeting of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 19, 1916.)

Pennsylvania was one of the last of thirty-one states to pass a Workmen's Compensation Law. In this great commonwealth where the strength of the various industrial establishments and mining and transportation interests exceed those of any other state in the Union it might have been foreseen that a Workmen's Compensation Law was inevitable.

It seems curious now that of the 11,611 registered physicians in the state who would be so nearly concerned in any Workmen's Compensation Law, and without whose aid it would be utterly impossible to enforce the provisions of any such law, there is no available record to show that any member of the profession was seriously consulted in the framing of the law nor was any warning given the profession of the terms of the statute which would immediately affect it. So blind to its legislative privileges and power was the profession, and so careless were we of our representatives' doings "in legislature assembled," that many of us did not know that a Workmen's Compensation Act was on the calendar.

The writer knows of but one member of this state medical society who had the watchfulness, perspicacity, and foresight to know and to recognize the great, far reaching effect of this law, and to warn the members of this society that some definite action should be taken to assert our rights and protect our interests.[1] Without notice the law was framed, quietly reported from committee, and with little discussion it passed both branches of the legislature. When it was an accomplished act our profession suddenly "woke up and began to take notice." It is practically the same thing as befell the medical profession of Great Britain when the British Workmen's Social Insurance Act was passed.

The medical profession of Pennsylvania had its warning a short time before from our confreres in New York State and yet we did nothing. If therefore the law is not to our liking, we have only ourselves to blame.

Every social regulation must place restrictions and limitations on some class of society; nor can any purely socialistic (used in its broader sense) law be carried out save in an altruistic spirit by some class of the community. Our democratic government is supposed to seek "the greatest good to the greatest number."

The law is on the statute books; it has been in force for eight months; its constitutionality has been decided by the Supreme Court of the state. As was said before, we must therefore accept it whether it is altogether to our liking or not. If we do not like it and it is a bad law, our remedy, according to General Grant, is to have it strictly enforced, in order to have it repealed.

But is it a bad law? What has the experience of the eight months taught in regard to it? Wherein shall it be amended?

In order to learn as much as practicable in regard to the working of the law the writer sent a questionnaire to prominent members of every county society in the state, and he asked the aid of every councilor of the state medical society to ascertain the sentiments of the physicians of his district.

Also he requested answers to his questions from the Industrial Commission itself.

Only twenty-seven county medical societies answered through their representatives. These societies though, on account of their locations, were those especially concerned in the working of the law. County societies located in the purely agricultural districts had few opportunities to know the effects of the law.

These are the questions sent out:

1. How does the law affect the physicians in your district?
2. How does it affect the hospitals in your district?
3. Does it prove a blessing to the work people?
4. What has been the experience with insurance companies in your district?
5. In the light of the experience in your district what amendments would you recommend?

To the first question, 21 reply the law affects physicians favorably; 6 reply it does not.

To the second question, 12 reply that the effect on hospitals is good; 9 reply that it makes no difference; 6 reply that it is objectionable.

To the third question, 19 say it proves a blessing to the workmen; 8 say it does not.

To the fourth question, 20 reply that experience with insurance companies has been satisfactory; 7 say it has been unsatisfactory.

To the fifth question, several suggestions of amendments were offered; these will presently be considered.

The reports of the councilors of the several districts coincide practically with those sent directly to the writer from the twenty-seven county medical societies.

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[1] Dr. F. L. Van Sickle of Olyphant.

It is evident therefore that a large majority of the physicians of the state believe the law is a good one, and is working efficiently for the good of the workingmen and to the advantage of the physicians.

As regards the opinion and experience of the Workmen's Compensation Board itself, Mr. Mackey, the chairman, very fully expresses the sentiments of this Board in his address before the Philadelphia County Medical Society at its April meeting. (This address and others delivered at the symposium will be found printed in the July number of the Journal.)

In answer to the questions sent to the Commission by the writer, Mr. Francis H. Bohlen, Counsel for the Board, in a letter replies as follows:

> The information which Dr. Estes asks for covers a very wide field, and I have not the time to give to him an extended survey of the operation of the Act such as he seems to desire. I may say, however, that I have dealt rather fully with the favorable working of the act in an address which I am to deliver before the Bar Association and which will, undoubtedly, be printed by it in the papers and in its annual report. In the address I state that the Act has, on the whole, worked very favorably to employees. Up to June 1st there have been over 13,000 agreements entered into and undoubtedly compensation has been paid in many cases without the formality of an agreement. There has been very little litigation, only a little over 400 claim petitions having been filed, of which more than one third has been settled by agreements without the necessity of a hearing or award. Where there has been the necessity for a hearing, the procedure has been very speedy, the average time elapsing between the filing of a claim petition and an award being very little over three weeks.
>
> I find that the employees, as a whole, seem to be well satisfied with the Act, though in some cases there have been complaints that the compensation is inadequate to meet the financial needs of the sufferers.
>
> There is no doubt that of these 13,000 cases in which compensation has been paid, only a very small fraction would have had any right of action at law to recover damages.
>
> Employers as a whole seem to be well satisfied with the Act. It seems to have reduced friction between the employer and employee, and while some of them have not become reconciled to the idea of paying compensation when they are not at fault, yet on the whole the employers of the state have seemed to be observing the requirements of the Act, and have become, at least, reconciled to it.
>
> The medical profession has profited enormously. Up to the present time nearly half of the sum disbursed by insurance companies and employers has been paid to the members of the medical profession. While the provision for medical attendance will, perhaps, require some extension in the future and is less than that in many other states, yet it is to be remembered that the physician has still the same right against the employee he attends that he had before the Act, and in addition the Act secures the physician attending an injured employee payment of at least $25 out of the employer's funds so that to that extent the employer guarantees the payment for services rendered to the employee by the physician.
>
> I find no complaint of any disadvantage which accrue to employers. Some employers, of course, complain of the expense, and the medical profession complain, in some cases, that they have been prejudiced by the Act, because they have not obtained from it as much as the profession has obtained in other states.
>
> The class which has suffered most by the Act has been the members of my own profession, lawyers who have been deprived of a practice which has been heretofore rather lucrative and who are restricted to a very modest financial return for services rendered to injured workmen and their dependents in the obtaining of compensation, awarded by the Act.
>
> The Board has been occupied with the work of administration of the Act as written. It will in all probability take up during the ensuing autumn the matter of tabulating its experience up to that time and will then determine what amendments, if any, it believes are required in the light of that experience.
>
> The Board is highly pleased with the working of the law. It believes that not only has the law worked well up to now and that as the various classes who are affected by the Act come to understand it more fully, and as the Board itself, profiting by experience, a more and more efficient administration will be able to be given by it, the results in the future will be even more satisfactory than those in the past.
>
> I wish I could give you a more exhaustive answer to your inquiries, but until the Board has tabulated the statistics and its experience, it is impossible for me to give a more detailed account of the operation and effect of the Act.

This letter shows the opinion and the attitude of the Board of Commissioners very clearly. It is evident the commissioners are satisfied that the law is a good one and that it is working to the advantage of the classes of people most concerned.

Mr. Bohlen speaks of proposed amendments and the probability that the Board will this autumn tabulate its experience and "determine what amendments, if any, it believes are required in the light of that experience."

If therefore the members of this society wish to present suggestions for amendments there is no time to lose in formulating, considering and offering these amendments.

The Board of Trustees has requested its chairman to present suggestions; he has received the views of the several members of the Board, also he has carefully collated and considered the amendments suggested by the various county medical societies. As a result the following are presented:

First Amendment: Define *major operation* as used in the wording of the Act.

This is a very important matter. Confusion, misunderstandings, delay in payments and much heart burning have resulted from the various conceptions of the meaning of *"major operation."*

Fortunately the Commission Board has already taken steps to obtain a proper and authoritative rendering of this term. The Board requested Dr. Francis D. Patterson, Chief of Division of Industrial Hygiene and Engineering, to procure a proper definition of major operation. Dr. Patterson asked the assistance of several surgeons of the state in determining the proper answer. The result has been that Dr. Patterson has recommended the following definition and explanation of major operation.

Definition for Major Operation:

1. A major operation is a surgical procedure which entails immediate serious consequences to the patient.
2. It is a surgical procedure which requires skill and training to perform.
3. All operative procedures other than finger and toe amputations, cleansing and draining and closing of wounds, evacuating pus by incision, the manipulation and reduction of uncomplicated dislocations, the treatment of uncomplicated fractured ribs, the removal of superficial foreign bodies from the eyes, and the removal of subcutaneous foreign bodies, should be regarded as major operations.

The following as an explanation: The term major operation would include the setting of fractures of long bones and reducing of subluxations, providing accuracy and efficiency of reduction and retention be demonstrated by Roentgen ray taken before and after surgical treatment and providing further that in all cases of fractures the attached form be made out in duplicate and forwarded to the secretary of the Bureau of Workmen's Compensation.

Up to the present time the Board has not formally adopted this definition but there is little doubt it will accept and adopt it.[2]

Second Amendment: Extend the period of direct payment for treating the injured workman to thirty days.

Various suggestions have been received in regard to this. To make it extend over the whole period of disability as in the New York law gives inducement for malingering which might in many cases result in serious extra expenditure by the employer. It would restore the old conditions which are so familiar to many of us in former damage suits. It is especially desirable to remove every possible inducement to malinger, and to do away with all possibility of damage suits in the future management of injured work people. Employers would be quick to appreciate this point and they would no doubt strenuously oppose an amendment of this kind.

The treatment of the majority of accident cases need not extend over two weeks. If the time limit were doubled, or made thirty days as a maximum, it would so nearly include all ordinary accident cases that it should satisfy physicians generally. This definite statement of a limit to the liability of the employer for the treatment of the employee would not encourage very serious malingering.

Third Amendment: Increase the limit of payment for "reasonable surgical, medical and hospital services," etc., etc.

The matter of proper fees in return for treatment of injured employees is the crux of the whole difficulty, it would appear from the expressions of most physicians.

The requirement of insurance of the payment of compensation in the Workmen's Compensation Law is the feature which though vital to the workmen is exceedingly troublesome, vexatious and sometimes humiliating to our profession.

Chairman Mackey and Counsellor Bohlen have both called attention to the fact that physicians are not limited to twenty-five or seventy-five dollars as a maximum charge for their services in any given case. The sentence in paragraph *e* of Section 306 reads: "The cost of such services, medicines, and supplies shall not exceed twenty-five dollars, unless a major surgical operation shall be necessary; in which case the cost shall not exceed seventy-five dollars." They evidently construe *"the cost"* to mean the cost to the employer as the law not only recognizes but requires insurance. This construction applies also to the insurance companies. If then the cost to the employer, or insurance company, shall not in any case exceed the prescribed limit of twenty-five or seventy-five dollars, the physician must hold the injured employee (the patient) liable for any additional charge for services, no matter how valuable in material or time these services may have been to the interest of the employer or insurance company. Though the members of the commission have formally and officially given this rendering, as a matter of practice insurance companies and physicians have taught, by precedent, the injured employees to understand that they will not be at any expense for treatment after the first two weeks of incapacity. It is practically impossible therefore for the physicians or hospitals to obtain more than the words of the law indicate. In many instances this is a great hardship to the physician and is below his ordinary charge for the like service in his own community. Physicians as taxpayers and consumers must stand their proportionate burden of the extra cost of manufactured commodities, and for transportation, due to the extra expense of the liability law to employers. It should certainly not be expected of them to give their time and material to beneficiaries under the law for less than they would to their patients generally.

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[2] Since the above was written the Workmen's Compensation Board has adopted the following definition of the term "Major Surgical Operation":

"A major operation is a surgical procedure which entails immediate serious consequences to the patient, and which requires skill and training to perform, and includes:

"1. The setting of fractures of long bones and reducing of subluxations, providing accuracy and efficiency of reduction be demonstrated by Roentgen ray taken before and after surgical treatment.

"2. All operative procedures, other than finger and toe amputations, cleansing and draining and closing wounds, evacuating pus by incisions, the manipulating and reduction of uncomplicated dislocations, the treatment of uncomplicated fractured ribs, the removal of superficial foreign bodies from the eyes, and the removal of subcutaneous foreign bodies.

"Note.—All fees for a major surgical operation shall be limited to such charges as are reasonable for similar treatment of injured persons of like standard of living in the same community, and where such treatment is paid for by the injured person himself, the charges including hospital service to be paid by the employer not in any case to exceed the sum of $75.00."

The maximum limit should be increased. It would seem best to adopt a sliding scale commensurate with the service rendered, but not to exceed two hundred dollars in any case.

As regards the insurance companies, they are purely commercial enterprises; they possess no altruistic features whatever. They are working to make all the money they can out of their contracts with employers of labor. Naturally they try to procure all needful service at the lowest possible cost.

At the beginning of their business in the state physicians were not awake to the situation. So lamentably badly acquainted were many physicians with the terms of the Compensation Act that they failed to grasp their opportunity. They did not disassociate these purely business underwriters from the legal machinery for carrying out the provisions of the law. Many of them apparently thought, in accepting positions with insurance companies, they were assisting in carrying out a noteworthy altruistic enterprise. Others thought the almost certainty of payment and prompt payment overbalanced the pitiably small fees they were offered. Still others jumped at what seemed an "easy job," not considering the returns. The aftermath must in many instances and respects be highly disconcerting.

The profession is now, after the evils have been organized, put into effect and endured for eight months, obliged to make the most difficult of all attempts; namely, to remedy a business error which has been condoned, accepted and practiced. The only efficient remedy seems to be thorough organization through the county medical societies, and the establishment of a determination and practice of demanding from insurance companies the same rate of remuneration to which the physician is entitled and is accustomed to receive for similar services from members of the community in which he lives, and which he serves.

Another suggestion has been offered which carries with it many perplexing difficulties, but which does not concern the text of the law. It is to make a proper disposition for remunerating the surgeon in charge who treats an injured employee in a hospital.

If the third proposed amendment should be passed and incorporated with the law, that is, raising the amount of remuneration for proper medical and surgical care to an amount not to exceed two hundred dollars, there might not necessarily be any serious difficulty. This seems the proper method of solving the question. As it now stands, after the hospital has been paid, nothing remains for the surgeon.

"Division of fees," is a most distasteful term and carries a most distasteful suggestion. A conscientious surgeon who respects himself will not *divide* fees when it means or carries the suggestion that he pay something in the way of a percentage for work which is brought to him or to which he is called.

As was suggested in the early paragraphs of this paper, to carry out the provisions of any law which radically changes the social customs and imposes new practices on a community requires true *altruism* on the part of some members of the state. It is not fair nor just that upon one class or profession there shall fall the whole burden of the altruism. From the beginning the medical profession has ever cherished the spirit and practice of altruism. Modern conditions impose greater pecuniary burdens on physicians, and modern society expects longer and better preparation for the work and much more costly service than ever before. Without renouncing the spirit and practice of altruism physicians must see to it that they conduct their affairs in a good business way, and they must have adequate remuneration for services to those able to pay.

It would seem that the tendency of the law is to reduce the remuneration of physicians. The lawyers claim that their profession is most affected in this way by the law. They are negatively affected however, for if their cases are reduced in number they are, to this extent, not required to work. Physicians however must be employed and in order to carry out the law they must serve. They work more and may receive less. If all this is true then it is necessary and proper to amend the law.

We must however have in mind that some of the present clauses of this law are tentative, they are on trial. Physicians must have patience, they must carefully note the imperfections and shortcomings of the law and present them in a proper and dignified way to the Commission Board. This Board seems inclined to be fair and just and is evidently striving to find out the shortcomings of the law and is not only willing to receive, but invite, proper criticisms and suggestions for amendments.

The trustees have received notice, and in one or two instances have had grave complaint made of the impatience and display of undignified and unprofessional temper on the part of some members of our society in regard to the working of some sections of the law. These instances of lack of restraint and unmanly outbursts do us much harm and accomplish only evil.

If the law should be amended we must agree on the clauses or sections to be amended.

We have in this society over 6,600 members. Our members are in every county of the state. County medical societies may be powers in their respective counties if they are thoroughly organized and are quite agreed upon the things they wish to have done. These members of the county medical societies organized into the medical society of the state form a much greater power, *if they all agree*. Let us be sure we are right.

However we must also remember that the law is intended primarily for the benefit of the workingmen. Our own business, as far as we can go without serious detriment to ourselves, should be shaped in order to assist in this good work. It is needed and it would be fine to have the law so established that the workmen are well protected and well insured.

Finally, another matter must be borne in mind. These compensation laws in other countries have invariably been the precursors, or a part of a *general social insurance law*. We may expect this also to follow in Pennsylvania.

The medical profession must not again be caught napping nor indifferent. We have a right to be heard and to be consulted in the drafting of these laws and we should be constantly on the alert, not simply to protect ourselves, but to do all we can to assist in making our commonwealth ideal for the life and happiness of all its people.

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EPIDEMIOLOGY AND CLINICAL FEATURES OF INFANTILE PARALYSIS

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(Read before the Section on Medicine of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 21, 1916.)

The significance of much of the data pertaining to the epidemiology of infantile paralysis is still too obscure to warrant a short dogmatic presentation of the subject. An infectious disease that may involve practically any portion of the cerebrospinal axis necessarily presents such a varied and kaleidoscopic symptomatology that even a mere reference to the clinical features is well-nigh impossible in a ten-minute paper. The invitation of your secretary was accepted simply for the purpose of introducing these two subjects for general discussion.

Acute infantile paralysis is by no means a new disease. Although the first classical description of it appears in 1840 (Jakob Heine), the disease had evidently been observed by Underwood in 1774, and by Jorg in 1816. Dr. John K. Mitchell has diagnosed the resultant deformity in an Egyptian mummy.

The first epidemic on record is a group of nine or eleven largely hearsay cases, which are reported to have occurred in a small parish in Louisiana in 1841. These cases attracted no attention and it was not until after the small epidemics in Scandinavia during the eighties, that the epidemicity of the disease was generally recognized. As the physicians of the nineteenth century were keen observers, it seems hardly possible that epidemics could have been overlooked until 1881; certainly there could have been none comparable to the modern ones.

Since then the plague has extended to all the European countries and to North America. The history in each country has been about the same, that is, a few small groups of cases followed in two years by larger and more numerous groups, and they in turn by more extensive outbreaks and later by pandemics.

The first large epidemic in this country appeared in 1907 with about 3,000 cases. In 1910 the disease was pandemic with at least 9,000 cases, and in no year since has the probable number been less than 10,000, as estimated from the reported deaths in registration area, making a much greater aggregate than the total number of cases reported from the rest of the world.

The infectious nature of infantile paralysis, indicated by the prevalence of the epidemics, has been experimentally proved by Landsteiner and Popper, Flexner and Lewis, Noguchi and others. A micro-organism has been isolated that fulfills all the postulates of Koch for specificity.

As to the contagiousness of the disease, there has been much debate, especially as to the means of transmission. The last word has not been said, but at present the bulk of evidence is in favor of the contention that it is a human-borne disease. The following observations, however, have been advanced as evidence against the theory of human to human transmission: That many of the cases are widely separated and are apparently unassociated with evidence of contact; that the disease often appears sporadically; that usually only one patient is observed in a family, and when multiple cases are seen they have frequently developed simultaneously; that the hundreds of acute cases which have been freely admitted to hospitals in the past have not been followed by ward epidemics; that occasionally the disease develops in individuals who have been isolated for weeks, as in inmates of jails; and that the epidemics almost invariably develop in warm weather when contacts in home and school are not intimate. These facts at first sight seem to be irreconcilable with the theory of human-borne contagion; but all, with the exception of the much greater prevalence of the disease in summer, have been explained by the exponents of the theory.

It is difficult to trace an infective agent in cities where the channels of travel and the points of contact are so numerous. Especially is this true of the virus of infantile paralysis, against which there appears to be a wide variation of susceptibility. But in small isolated settlements, where free communication with the outside world is limited, and where the social intercourse of all the inhabitants can be observed, the course of contagion can be followed in practically every case. This was first done by Wickman in several Scandinavian villages and islands, in a most convincing way, and has been repated many times. However, the contact theory of the transmission of the disease can be sustained, even in small settlements, only by presupposing the existence of healthy carriers, and by conceding the infectivity of the mild ambulatory type of the disease, that is, the so-called abortive, nonparalytic type. Many instances are on record where healthy contacts have apparently transmitted the disease to others, although they themselves have escaped. The washings from the nose and throat of such persons have infected monkeys with the typical disease, as proved by autopsy findings. The much-quoted observation of Dr. Shidler of York, Nebraska, is a good instance of direct infection. A mother and child visited in a home in which there was a case of infantile paralysis. Nine days after the mother with her child had returned to her own home, one of her other children came down with the disease. Six children of the next-door neighbor developed it; a baby was brought to visit the second family. In five days it succumbed to the disease.

The existence of an abortive form of the disease, which Wickman so clearly described, cannot be doubted. The onset of this type is precisely like that of the paralytic form. This nonparalytic form simply does not progress so far as the paralytic. The infection is arrested before the cerebrospinal axis is much involved. Instances of this form are numerous in every epidemic. In fact some evidences of their presence can be found if carefully looked for in a considerable proportion of all families in which the paralytic form of the disease exists. Statistics on this point are not complete, but it is highly probable that in the majority of instances in which a frank case occurred in a family of several small children, some of the other children within two weeks had fever. Inoculation experiments from the noses and throats of these ambulatory patients have revealed the presence of the virus, and the blood serum from such patients can so neutralize the virus of a known virulence *in vitro*, as to make it noninfective to monkeys.

Granting then that the foregoing facts concerning carriers and abortive cases are established, the sources of infection can be traced in most of the village epidemics through said carriers; and the spread from these villages along the avenues of travel can be demonstrated. Even in cities, although the connection from case to case frequently cannot be determined, it is to be noted that the disease is apt to appear in groups and radiate therefrom.

The sporadic cases may not be as infectious as the epidemic ones, even though due to the same organism. This may result from a fluctuation in the virulence of the organism. When the micro-organism is injected into a monkey, the first generation of organisms does not grow readily, but the virulence increases with successive generations until a maximum potency is reached and then diminishes. Augmentation in virulence during an epidemic in the human is indicated by the fact that the average age of the patients is apt to rise as the epidemics progress. This is apparently true of the present epidemic, but proof must await the completion of statistics. Furthermore the mortality of both children and adults is greater as the epidemic lengthens. The virus seems to increase in strength as it is passed from generation to generation through the human culture media. If this is true, would it not be reasonable to expect the sporadic infections to be milder and not so contagious as the epidemics?

There are now hundreds of records of two or more paralytic cases in one family; and if the so-called abortive cases were more generally recognized, probably the secondaries would be as numerous as the individual cases. Many of these instances of multiple infection include those that have been infected simultaneously; but, on the other hand, there are many in which the time interval strongly suggests secondary infection.

In the epidemic now raging, secondary cases have developed in some hospitals in which acute cases have inadvertently been admitted and not guarded. Healthy carriers may account for the few instances of sporadic cases in jails. Probably the reason the epidemics are not even more inclusive is that susceptibility is restricted, as it seems to be against cerebrospinal meningitis.

The greater prevalence of epidemics in summer months does not accord with the theory, of contact transmission. The lowered vitality and lowered resistance of children in summer is not sufficient explanation. These conditions should also increase the frequency of other respiratory diseases, as diphtheria, measles, pneumonia, etc., but such is not the case.

To sum up the above: Personal contact with patients, carriers, or with infected objects certainly seems to be a possible means of disseminating contagion, but may not be the sole method. At present it is the most satisfactory explanation, and is supported by more evidence than any other theory. But search for a specific carrier must be continued.

Infantile paralysis is essentially a general infection in which the organisms, and possibly toxins, have a special affinity to the nervous system, producing a scattered and widespread meningo-polioencephalomyelitis. Such a disease may cause an innumerable number of combinations of signs and symptoms.

In general these manifestations are those of a systemic infection with meningeal irritation, plus focalizing signs depending upon whether the lower neuron (bulb or cord) or the upper neuron (cerebrum) is affected. In the former flaccid, in the latter spastic paralysis predominates.

The diagnosis of the former case, of lower neuron involvement, is comparatively easy except when the meningeal symptoms are severe and also when the paralysis is transient. The upper neuron cases are extremely difficult, but fortunately they are usually accompanied by lesions elsewhere that fix the diagnosis.

The so-called abortive cases and the preparalytic stage of the other types are the most trying from the viewpoint of the diagnostician, and regrettably they are by far the most important for therapeutic and public health reasons. It is only by the early detection, and by the isolation of these cases that epidemics can be controlled.

In all types, the early symptoms that are most constant are moderate fever, occasionally, however, going to 105; rapid pulse and respirations which soon become markedly out of proportion to the fever; constipation, sometimes preceded by a little looseness, rarely persistent diarrhea; pain on motion of neck or back; general soreness, especially in the legs; increasing drowsiness, but clear mentality when aroused; muscular twitchings; increased patellar reflexes in the earliest stages, but soon lost in most cases. In a number of instances a history of mild pharyngitis, or of a patch on tonsils a few days back, has been obtained. In older children there may also be an awkward, somewhat ataxic, gait that is conducive to falls; headache and vertigo; general soreness or pain, particularly in the legs.

Of chief diagnostic importance are the evidences of tenderness of neck or spine on motion, and the condition of the spinal fluid. When symptoms of a general infection are associated with evidence of mild meningeal irritation in a previously healthy child, during an epidemic, a lumbar puncture is demanded.

Cytological examination of the fluid should be made immediately; more than fifteen cells per centimeter is very suspicious, particularly if lymphocytes and large mononuclears predominate. In the early stages polymorphonuclears may be in excess. The other important features are the increase in the amount and in the pressure of the fluid; the moderate excess of globulin and albumin; prompt reduction of Fehling's solution and the absence of micro-organisms of sufficient size to be seen by ordinary microscopic methods.

In closing, I would urge the need of insisting, at all seasons, upon bed treatment (quiet) for all children exhibiting symptoms of malaise, vomiting, constipation, sore throat, head or neck ache, stiffness or pain on motion of spine, with or without patellar reflexes. This simple treatment may prevent paralysis. Many children have developed paralysis a week or more after "an attack of indigestion," which might have been prevented by rest.

DISCUSSION

Dr. Alfred Hand, Jr., Philadelphia: While my experience in this disease has been limited, it has at least been varied. For some years after graduation, all of the cases I saw were of the type described to us in the medical school, a mild one with few, if any, symptoms preceding the paralysis; so that when I saw first in 1900 a severe case of the meningitic type I was sure that it was meningitis, probably tuberculous. The patient was a boy,. 9 years old, who, after premonitory pains in the back for several days, was confined to bed with fever, great rigidity of the neck, positive Kernig's sign and other meningeal symptoms. In a few days complete paralysis of the left arm and leg developed, followed by rapid pulse, disturbances in the respiratory rhythm and pulmonary edema, so that through one day a fatal termination was hourly expected. But improvement set in and recovery was rapid except for a paralysis which made the diagnosis clear; the muscles affected were those of the left half of the chest, the left shoulder, arm and forearm, so that as the boy grew up great lateral distortion of the trunk occurred. The next case seen was in 1903 and this was of the neuralgic or neuritic type, so severe as to cloud the diagnosis for a few days until the paralysis appeared, the tenderness over the large nerve trunks persisting for some time.

In 1908 a case of the ordinary type, with moderate hyperesthesia and extensive flaccid paralysis of both arms and legs, was seen. Then in 1910 I was called to see a man of 48 years, whose initial symptoms were sore throat followed in a few days by restlessness, inability to sleep, loss of appetite and twitching of the muscles of the left side of the face. When first seen in his office his temperature was normal but that evening he had fever and on the following day a Bell's palsy of the left side of the face. Two days later there was a beginning paralysis of the right shoulder which spread to the entire arm and leg, making a crossed hemiplegia and giving the clinical picture of an acute bulbar palsy, this diagnosis being suggested first by Dr. Riesman. Unconsciousness and paralysis of the bladder and rectum followed and death occurred nine days after the confinement to bed (on August 1, at which date poliomyelitis was first placed by the State Board of Health on the list of diseases to be reported); it was not until Dr. Spiller had studied sections of the medulla some time later that the lesions of acute anterior poliomyelitis were found. I was not aware at the time that there was a small epidemic of the disease, but a few days ago I met a physician in West Philadelphia who told me that in the summer of 1910 he had six cases in one street not far from where my patient resided. In the fall of that year I saw an abortive attack in a boy 7 years old. After a diarrhea of two days he awoke one morning with pain in the left leg and was unable to move it; when I saw him at noon, he was up and dressed, walking with a drop of the left foot apparently due to a slight peroneal paralysis, which disappeared completely in a short time. On the preceding Saturday the boy had spent the day, which was rainy, in the house of a playmate who was taken sick on Sunday morning and died in a few days of infantile palsy. This is the only instance in which I have been able to get a history of contact.

As Dr. Fife has said, the diagnosis is difficult unless paralysis is present and therefore in the early stages it may be impossible. In an infant admitted to my wards at the Children's Hospital there was such great tenderness of the legs as to suggest to the admitting physician a possible diagnosis of scurvy, a very reasonable thought for a pediatrist. I have seen many cases this summer of fever, redness of the throat, with or without vomiting and diarrhea, but with no evidence of paralysis and I have not looked on those as cases of the abortive type. One doubtful case, which alarmed the whole suburban district in which it occurred because of the rapidly fatal termination, was that of a boy 10 years old. He was taken sick Sunday morning with headache and anorexia and a temperature of 101 F.; the next day he vomited some and had 102 F.; in the afternoon a physician who saw him found redness of the throat, with nothing else to account for his condition. At 8:30 p. m. a neighboring physician was called in who found him in an alarming condition, with profuse perspiration, pulmonary edema, 102.5 F. and a pulse of 160. When I saw him at 11 p. m. he was expectorating at times considerable mucopurulent material with blood. He seemed unable to swallow water and when asked why he did not swallow it, said that it hurt him. There had been no hyperesthesia, and there was no paralysis apparent in the arms or legs; there was much secretion in the pharynx and when this was washed away the mucosa was seen to be deeply congested. In spite of all we did, the pulse rose steadily to 190, the temperature to 104.5 F. and the boy slept quietly away in four hours. Two days later the two sisters, aged 6 and 8 years, were taken with fever and severe enteritis, and there were several similar cases in the neighborhood, so that I looked on them all as infections probably milk-borne, none of the milk which they had been drinking having been pasteurized. The fatal case seemed to be most likely a streptococcus infection.

Dr. Theodore LeBoutillier, Philadelphia: The amount of contagion to individual children in this epidemic is certainly not known. We do not know at all how contagious the disease is or how it is carried, or what the natural immunity is. I started in with the idea that the natural immunity was very great but since the weeks have gone along I am reaching the conclusion that it is not so great but that the number of abortive cases is presumably large. If in the cases not reported we could do a lumbar puncture I believe we could make our diagnosis absolute in a very large proportion of the patients who have had abortive infantile paralysis this summer. I have seen numerous cases and the medical inspectors have seen large numbers of this type which, fortunately, does not go on to paralysis. We believe that the cases of even an abortive type of the disease will most likely give acquired immunity to that child for life. We have had one interesting case in the Philadelphia Hospital for Contagious Diseases of a child with an apparently authentic history of a second attack of infantile paralysis, the first attack said to have occurred five years before. This is the only patient of which I have heard of having had two attacks of this disease.

I feel that I know so little about the way it is transmitted that I shall not speak of this, except to mention the question in my mind, as to whether dirt and dust, especially dust, is not as great a carrier as direct contact, or contact with other people. When we realize that the month of August in Philadelphia this year was the dustiest month we have had for years, with a rainfall of only 0.84 of an inch instead of 4½ inches, we may be able to work out something along that line. It is interesting to note that from January 1 up to midnight of September 15, there were 728 cases of infantile paralysis in Philadelphia; that from January 1 to July 1, there were 3; that there were 86 in July, 488 in August and the rest in September. The time of the greatest number of cases was August 15, 30 cases being reported on that day.

Of the total number of cases, 410 were males and 318 females. The mortality percentage in Philadelphia has been about 30 per cent., which is exceedingly high. Were the abortive cases counted the mortality would be much lower than that, probably not over 10 or 12 per cent. The age of these patients is also an interesting study. From birth to 6 years 80 per cent. of the cases occurred; the largest number, 170 cases, occurring from the first to the second year. From 6 to 15 years, 18.5 per cent. occurred; from 16 to 41, the age of our oldest patient, 1.5 per cent. It will be seen, therefore, that the disease is one of early childhood, with special predilection for the first three years of life. In the first year there were 111 cases; from 1 to 2 years of age, 170; from 2 to 3, 139; from 3 to 4, 110, and then the number gradually decreased.

The symptoms of the preparalytic stage are of the utmost importance. As Dr. Fife has said, the temperature, pulse and respiration give a picture which we rarely get in any other condition. We have a temperature ranging from 100 to 104; in a few instances I have seen it as high as 105; with a pulse varying from 120 to 180 and respirations invariably increased. In a light case with comparatively low temperature we practically never find the respirations under 30 to 36; in more severe cases, 35 to 45; and in very severe, 40 to 60 per minute, with absolutely normal lung findings. That is in itself decidedly suggestive. With the onset of paralysis the temperature subsides. The pulse rate, however, remains high, not dropping possibly over ten beats in any of these cases. For three or four weeks in many instances the pulse will remain high. In light cases it will descend toward normal within ten days.

The gastro-intestinal symptoms are of the greatest importance. You find that the older children complained of pain about the region of the umbilicus, usually only slight, not as a rule severe enough to call in the doctor; certainly, if the mother did not find that the child had fever the doctor would not be called. You get a history in nearly 90 per cent. of cases of slightly constipated stools. In less than 10 per cent. there may be slight looseness of the bowels and in these cases there will often be history of vomiting. When there is slight constipation it is rare to find vomiting or nausea.

Dr. B. Franklin Royer, Harrisburg: The more I see of infantile paralysis the less I feel that I know about transmission of the disease. The literature as published is up to this time not convincing that anything new has been definitely proved during this epidemic. Research workers are not at all convinced that Dr. Flexner has found an organism that will definitely produce the disease. Certainly he has not been able to complete Koch's circuit with the bodies that he has apparently grown under anaerobic conditions. Infantile paralysis has in a very few special instances been reproduced from the nasal mucous membrane in so-called carriers. The disease thus produced, however, does not have the same degree of virulence as when produced from emulsion of brains or cords taken from human beings or infected animals. Concerning the way the virus of the disease may be conveyed, as Dr. Fife has already pointed out, we know practically nothing. Why the disease should be sporadic at times and at other times show epidemic tendencies, we do not know. In this particular its behavior is somewhat like epidemic cerebrospinal meningitis, except that an entirely different season of the year shows the undue prevalence, meningitis appearing in cold, damp winter and late spring months and infantile paralysis in the hot months of the summer and early autumn. We are still, therefore, in the position of working and taking precautionary measures almost wholly "in the dark." From a public health standpoint we employ all measures that seem to have offered anything helpful in handling other epidemic diseases. We fight it as if it may be insect-borne or food-borne and we also fight it as if it may be air-borne or wholly transmitted by contact with cases, carriers or intermediate carrier hosts. It is possible, in the light of future investigation, that we may find we are now doing many things that need not have been done, yet we should be judged by the public as culpable and negligent did we not make use of all measures that seemed to offer some help in handling other communicable diseases.

The possibility of abortive cases being more numerous than has been generally supposed was mentioned by the reader of the paper. We may some day discover that the cases which we recognize now as infantile paralysis represent but a small proportion of the individuals in any community that actually have the same processes going on in their systems during the prevalence of the disease and it may only be the occasional case going on far enough to show paralysis that we have been diagnosing. It seems altogether probable, therefore, that the processes in one child may produce paralysis and in another may not produce paralysis or even profound systemic disturbance.

There is no way, as Dr. Fife has pointed out, of definitely determining the diagnosis in an abortive case. Studies of carefully withdrawn spinal fluid are of course helpful but not definite or always dependable. They are helpful chiefly in differential diagnosis.

It is true in most instances where several cases of infantile paralysis have occurred in one family that the onsets of the disease are very nearly simultaneous. It is rare in dual household infections to find intervals between the first, second or third cases that might be comparable to periods of incubation; that is, one case developing nine or ten days, or longer, after the first case sickened.

As a rule poliomyelitis does not appear with the same degree of epidemicity in a community in succeeding years. It may be that the susceptible material is used up in the first outbreak and that a second crop of children must develop or a large influx of children must come into the community in order to offer available material. This observation seems to strengthen the belief slowly developing in the minds of research workers that perhaps those having undiagnosed, nonparalytic and abortive types of the diseases are rendered somewhat immune.

In 1910 we had an undue prevalence of infantile paralysis throughout the state, a total of 1,076 cases during the epidemic proper, somewhat more than 1,100 occurring during the entire year, and practically all of the counties being involved. This year the disease has not seemed to spread in the same way in the communities most affected in 1910. In the Lehigh Valley in the vicinity of the Bethlehems and in Lancaster County we had many cases in 1910 and yet this year we had comparatively few cases and without tendency to have them become numerous. Why New York City should have had an interval from 1907 to 1916 without any tendency to have the disease occur in epidemic form we do not know, nor do we know why there should have been little tendency in 1907 to have the disease follow along the routes of travel leading out of New York and yet this year it has seemed to follow such lines of travel. The disease at the present time has missed ten Pennsylvania counties; in fifteen counties there are not more than two cases in each. Twenty-five counties in Pennsylvania have had very few cases. The disease has been most prevalent in Philadelphia, Delaware, Montgomery, Bucks and Chester counties (all located near Philadelphia), and in the North Susquehanna Valley, Lackawanna and Luzerne counties.

Just what influence insanitary conditions may have in favoring the spread of the disease is purely speculative. In some of our communities where the State Department of Health established the most radical cleansing measures results seem to have been shown, and yet these measures were carried out in the presence of the most rigid quarantine regulations the state has ever established. In Old Forge, Dr. Reifsnyder, county medical inspector for Lackawanna County, enforced radical cleansing and the disease seems to have been limited in its spread. In Bristol on the Delaware River similar results seem to have been noted. Yet in previous outbreaks, just as in this one, the disease seemed to be unduly prevalent in the most sanitary sections of a city rather than in the slum areas. In this particular, the disease stands out in striking contrast with meningitis. In 1910 we superimposed on the same chart for the city of Philadelphia an outbreak of epidemic meningitis and outbreaks of infantile paralysis. In 1910 infantile paralysis was much more prevalent in West Philadelphia, Germantown and Chestnut Hill than in the slums, the reverse was true in 1907 of epidemic meningitis.

Dr. Theodore H. Weisenburg, Philadelphia: I have been studying the infantile paralysis cases in the Municipal Hospital from the neurological standpoint. We have had in Philadelphia a splendid opportunity to study this disease because the great majority of the cases are brought to the Municipal Hospital. One of the surprising things about it is that in spite of the large number of cases that have been admitted, now amounting to about six hundred, there have been only nine or ten cases in which a mistake has been made in the diagnosis. This speaks volumes for the remarkable efficiency of the Department of Health of Philadelphia, so ably managed by Dr. Krusen.

In most cases the paralysis is of course confined to the lower limbs but there are many in which there is implication of one or both upper limbs, generally in association with the chest muscles, and then again the abdominal, gluteal and upper thigh muscles. As a matter of fact in the beginning it is impossible to tell the extent of the paralysis and it is only after a few weeks during which improvement takes place that it is possible to tell its limitation. On the whole this has been a very severe epidemic in the sense that the paralysis has been very severe, the deaths being very large, in Philadelphia averaging to about 30 per cent. of the cases. Practically all of the deaths are due to respiratory paralysis, mainly because of the involvement of the chest muscles and to a less extent to bulbar involvement. In the cases where death occurs the end comes very rapidly and practically nothing can be done for the patients.

After a few weeks the limitation of paralysis can readily be seen. In the lower limbs it generally involves the upper thigh muscles with the gluteal group. Of the upper limbs the deltoid group is mostly involved.

Meningeal cases are very common. They may have in association paralysis of a limb or limbs or may clear up without any permanent paralysis. I have seen a limitation of the meningeal involvement either to the lower limbs or the upper limbs. This so far as I know has not been previously described. In these cases there generally is a very marked increase in the amount of cerebrospinal fluid but in one or two instances we have obtained a dry tap.

I have not seen the neuritic form of poliomyelitis. My own impression is that the pains are meningeal and are very common. In fact one can always tell which limb is paralyzed by the pain that accompanies any handling.

There have been a large number of bulbar cases. In these the seventh nerve is generally implicated, although in my own examinations I found as a rule an associated paralysis of the sixth and fifth nerves. Paralysis of the ocular group is very uncommon. Blindness I have seen only once.

I believe the best treatment is lumbar puncture repeated just as frequently as the indications point. I am not at all enthusiastic about the serum treatment. The adrenalin treatment offers a little more hope. I cannot see how any form of treatment can do good after the damage has been done, for when the paralysis appears no form of treatment can stop what is bound to occur. After the acute symptoms have subsided, and even during these, it is important to keep the patient at rest and even to put the paralyzed limbs at the so-called physiological rest, that is to prevent contracture because of the antagonistic action of the normal muscle. To prevent this celluloid splints based on a plaster cast are of the greatest value. After this, massage treatment with electricity should be used. Galvanic electricity is the only form that is of value and this can be applied only where it is possible to get at the muscles. It is a mistake to give electricity too early.

Dr. LeBoutillier: Before taking up the question of treatment I should like to refer to the early symptoms which seem to me rather important. We speak of the restlessness of the child going on rapidly to drowsiness and to stupor in a few cases, although one can always arouse the children to answer questions. Older children suffer from headache, occipital in type. As a rule this does not last after the paralysis begins. The head symptoms, especially pain on nodding the head, are almost diagnostic. Early in the disease in children under 5 you may get marked sweating of the head and neck. Twitching of the muscles

Dr. Fife mentioned, and that may be a slight fibrillary tremor or exceedingly violent. In one child all four extremities were involved. The child was conscious and absolutely quiet, but the muscles were in absolute tremor. With the beginning of paralysis pain increases in the affected part on motion. The knee reflexes are absent in 99 per cent. of all cases. I have found that even in the early stages the knee reflexes are either reduced or absent; in a few cases they have been exaggerated.

In treatment I think we have tried out every line tried in New York and elsewhere of mercurials intravenously, intraspinally, subcutaneously, by mouth, without any results whatever. That which has done the most good is lumbar puncture. This relieves pressure and pain and is repeated if the pain continues. We have used the normal human serum and immune serum. We feel that in a great many cases we have saved the child's life. I know of a dozen cases in which the child was apparently dying when the serum was administered. We give it intraspinally if making lumbar puncture; if not, intravenously, which gives a rather quicker action than the intraspinal method. Usually there is a reaction, the child will feel uncomfortable for a few hours, but the temperature will drop to normal, the pain cease and the paralysis does not increase. We try to give the serum when the paralysis is increasing, going from one part to another. If we have not the immunized serum we give the normal human serum repeated in two or three days. I have in the ward now three children who had paralysis of all four extremities and of the neck and back, almost complete paralysis of deglutition and of the vocal cords and of intercostal muscles with abdominal breathing. We gave these children the immunized serum and they have recovered; that is to say, they are still living. They have no more intercostal paralysis. They still have paralysis; one, of the legs; another can move the legs, and another the arms; they can sit up in bed. We have been giving hyperisotonic salt solution intravenously. We find that it tones up the child. Dr. Weisenburg has rightly emphasized the value of absolute rest. The child should not be left in one position too long but should be turned because atrophic conditions are present and bed-sores may develop within twenty-four hours unless the greatest precautions are taken.

Dr. Fife, closing: Dr. LeBoutillier and Dr. Royer have wisely thrown a good deal of emphasis on the abortive cases because by the diagnosis of these we may hope to stop the advancement of the disease. These cases are a good deal more numerous than we formerly thought. If the other children of families in which there is a frank case are examined it will frequently be found that some of them have digestive disturbance, fever, headache and a little stiffness of the neck. Most of the patients, as Dr. LeBoutillier has said, complain of pain in the abdomen and of constipation, and give evidence of general malaise. Careful examination will reveal signs of meningeal irritation. A baby may lie perfectly quiet, but if you approach the bed it will cry, fearing motion of its spine. Very early the reflexes, in my experience, are increased, though later of course they are diminished as Dr. LeBoutillier has said. In such cases with these sensory disturbances I am sure it is justifiable to do lumbar puncture, which usually makes a diagnosis possible. I am confident that many "abortive" cases are missed which could have been recognized if lumbar puncture had been made. I imagine that the widespread immunity which seems to be present is largely due to these numerous instances of abortive poliomyelitis.

It is true that the contact theory of nose and throat infection does not explain all the factors that seem to bear on the transmission but it is better than anything yet brought forward. The infection from the nose and throat secretions can certainly be transferred, as proved by animal experimentation. Until the contact theory can be disproved we are not warranted in lessening our quarantine methods for these cases one iota. The abortive and paralytic cases should be included in the quarantine because they spread most of the infection.

The organism isolated by Noguchi has fulfilled all the requirements Koch has set for specificity. It would seem that this fact should settle the debate as to etiology. The organism is not very virulent to monkeys until it has passed through several generations of the monkey and there is often difficulty in infecting the monkeys. Nevertheless, it has frequently been transmitted.

Dr. LeBoutillier has spoken of the age incidence. This is very marked in the second year but as the epidemic continues the incidence is greatly advanced, possibly because of the increased virulence of the organism.

SOME PHASES OF THE DRUG HABIT PROBLEM, ESPECIALLY IN RELATION TO THE HARRISON ACT

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The use of opium as a habit has been a social menace in many lands and for many years. It was known among the Arabs before the eighth century and it was introduced by them into India in the fourteenth century. Eating opium was widespread in India about the sixteenth century but smoking opium was practiced almost exclusively only by the Chinese in that country.

The practice of opium smoking is ancient in origin and probably arose in Egypt and Arabia before appearing in India. From India it was introduced into China in the seventeenth century. Opium was smoked in the Littoral, Macao and Canton in 1660, and spread to Cochin China, the Hawaiian and Philippine

Islands, Siam, Australia, and South America in the nineteenth century.

The first effort to control its use with which I am acquainted was made by Yung Cheng, who issued an edict in 1729 prohibiting opium smoking in China, the penalty ultimately being transportation and death. In spite of this, opium was cultivated in every province of China at the beginning of the twentieth century and its use as a habit became so general in 1906 that 13,000,000 (or 27 per cent.) of the adult males of China were said to smoke opium. In this year (1906) an edict was issued prohibiting the consumption of opium and the cultivation of the poppy. The Chinese nation decided to make an effort to end this use of the drug in ten years, as they regarded it as a great national moral and economic question. The cultivation of the poppy was to be restricted annually one tenth; users were to be registered; all selling shops to be gradually closed and smoking shops closed in six months; anti-opium societies were officially recognized; medicines were distributed to cure the opium smoking habit, and all officials under sixty years of age were to discontinue the habit in six months. India was appealed to and promised cooperation.

In 1906[1] a committee was appointed by the Philippine Commission to investigate the use of opium and the traffic in Japan, Formosa, Shanghai, Hong-Kong, Saigon, Singapore, Burmah, Java and the Philippine Islands. They recommended government monopoly, prohibition of the sale or use, or license to all inhabitants who were not males over twenty-one years of age; violation by natives to be punished by fine or imprisonment, and for non-natives, in addition to this, by deportation for five years at least; education of the school children as to the evil effect of the use of opium; free treatment in government hospitals for those addicted to its use and desiring treatment; and the cultivation of the poppy to be forbidden by law.

In February, 1909,[2] a conference in Shanghai composed of delegates from China, United States of America, Great Britain, Austria-Hungary, France, Germany, Italy, Japan, Netherlands, Persia, Portugal, and Russia, was held and it was resolved that it was the duty of the respective governments to prevent the exportation of opium to any countries prohibiting its importation; that drastic measures should be taken against the use of morphin as a habit; that anti-opium remedies should be investigated; and all countries having concessions in China should close the opium divans in these possessions.

It was found that the use of morphin as a habit was increasing in China due to the exploitation of anti-opium remedies which were found to contain morphin. This drug was first imported into China in 1892 and in 1902, 195,000 ounces were being imported. In 1903, a tax of 20 per cent. ad valorum was imposed by the Chinese government on its importation and in 1905 only 54 ounces were declared. This diminution, it is believed, was not due to lessened demand but probably as a result of smuggling.

The next step in an effort to control the use of opium as a habit was made in December, 1911, at the Hague, where there met in an International Conference,[3] representatives from Germany, United States of America, Japan, China, France, Great Britain, Italy, the Netherlands, Persia, Portugal, Russia and Siam. They endeavored to secure legislation for the registration of premises, licensing of persons, inspection, as well as the regulation of import and export trade in respect to morphin, cocain, etc., and that these drugs should be used medically only.

The Harrison Act was intended to regulate the use of opium and its derivatives and cocain as a habit in this country. The result at first was a wide-spread arrest of drug users and venders. A study of these resulted in the discovery of some interesting and previously unknown facts. A large number of those arrested were referred to the Narcotic Drug Committee and, as a member thereof, I was thus afforded an opportunity to study eighty-six cases.

It was found that the victims were mainly frequenters of the tenderloin and were composed of thieves, pickpockets, pimps and harlots in large part. Some were individuals who sought the tenderloin as the easiest way to get the drug desired and were arrested incidentally. A good many of those arrested had already served time, as vagrants, pickpockets, streetwalkers, keepers of disorderly houses, gamblers, alcoholics, highway robbers, incorrigibles, keepers of speak-easies, and for disorderly conduct and burglary. Some were young men who were able to work when they had their dope.

Most of them acquired the habit through dissipation, by association with drug users, or through idle curiosity. In most instances the drug was taken for its pleasurable effect in the beginning. It was sometimes acquired after taking the drug for the relief of some physical ailment, such as insomnia, pain or toothache, having been suggested by associates who had contracted the habit by using it at first for the relief of similar symptoms. A few developed the habit through careless prescribing by physicians. Sometimes it was acquired in an effort to relieve the distress of abstinence symptoms of alcoholism but the drug user is rarely an alcoholic and is not as a rule fond of alcoholic intoxication. It was found that men working in morphin factories sometimes accidentally acquired the habit. My experience with the better social class who are victims of the drug habit since the operation of the Harrison Act has been very small, indeed almost negligible. This is due probably to the fact that those who can pay for treatment usually go to institutions and do not consult the neurologist, or the need of treatment is not great, as it is easy for such individuals to provide themselves with the drug through unscrupulous physicians and druggists. Moreover the conditions do not exist among the better class which make for an extension of the habit like that seen in the underworld. Here the element of contagion is eliminated largely. This class is made up of professional men and women, merchants, actors and the leisure class.

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[1] United States War Dept., Philippine Commission, Washington, 1906.

[2] E. M. Holmes: Encyclopedia Britannica, 11th Ed., 1911.

[3] International Conference on Opium, the Hague, Dec. 1, 1911 to Jan. 25, 1912.

The principal source of the drugs to the tenderloin class was the drug vender. As the dangers of arrest increased, the drug venders at first were largely put out of business as the bail demanded was so large as to be almost prohibitive. Users then consulted certain doctors who made a practice of giving the so-called reduction cure. The reduction cure outside of an institution can be looked upon as a mere device to evade the law. It is impossible to remove the drug in this way. No drug user is able to bear the abstinence symptoms, and immediately these appear he resorts at once to the use of drugs again. Of these physicians using the reduction cure there were over thirty-five in Philadelphia at one time, some of whom wrote as many as a hundred and fifty prescriptions in a day. The amount was reduced very little each day and peradventure should the amount grow too small to satisfy the drug user, another doctor would be consulted who would begin conveniently where the drug user wished him to. Sometimes several doctors were consulted, and in this way a large amount could readily be obtained at one time.

One of the difficulties one meets in treating these patients is to induce them to take treatment at all. When an effort was made to induce drug users who came under the observation of the Narcotic Drug Committee Social Worker to take treatment, it was found that only a very small number availed themselves of the opportunity. Many expressed themselves as not wishing to be treated; others promised to report to the hospitals suggested but failed to do so; others were admitted to the hospitals for treatment but left in a day or two; while those who remained until after the drug was removed and were restored to good physical condition returned soon to the habit or resisted all efforts at follow-up observation in most instances. On the whole the efforts made to save these people from the slavery of their habit failed in almost all cases.

The social degradation is an important element in the facility with which the drug user returns to the habit. When the drug is removed the victims have practically to face the making of a career again with lost caste in their own immediate family and in the social atmosphere of their original surroundings. They have declined socially and morally, have suffered from contamination which comes from association with the lower world, perhaps have been arrested, and are consciously handicapped. They begin inferior and end less fit. Moreover the victims of this habit are in our opinion congenitally inferior and have a biologic tendency to degeneracy.

A prolonged sojourn in an institution after the treatment designed to remove the drug has been undertaken offers the only hope of a possible permanent cure. Such an institution should be one which should offer occupation added to efforts at uplift and should preferably be in the nature of a colony farm, where also industrial training could be obtained.

The value of an institution designed to treat these cases would depend upon whether this class would avail themselves of the treatment therein. The number of drug users needing such a provision would be large at first if the law were sufficiently adequate to cut off the supply of the drug used. Then later the number would rapidly fall if proper laws governing the distribution of the drug could be enforced. The most effectual way to control the use of opium as a habit is to prevent the drug user from getting the drug. The only way to accomplish this lies in the enforcing of proper laws.

The present plan to establish a state institution for inebriates where these cases could be sent is yet undeveloped.

The facilities in such an institution for inebriates should be sufficient to take care of those drug users who could be induced to undergo a prolonged treatment or who might be committed by law under the inebriate act.

The seriousness and extent of the habit are a question not entirely clear. There is no sure way of knowing how many drug users there are. Kebler,[4] of the United States Department of Agriculture, stated that there were at least one hundred sanatoria advertised to cure the drug habit. He knew of thirty so-called drug addiction cures which have a large patronage and managers of mail order companies had 100,000 names of drug users on the list. It has been estimated by some that the number of drug users in the United States is from one to four million and by others two hundred thousand. Much reliance cannot be placed in these statistics, however, though the number we believe to be large.

The drug habit has some bearing on the question of crime, perhaps only an incidental one. Five per cent. of the admissions to the state prison of Manhattan[5] were drug users. In the Ragoon[6] Central Jail 27 per cent. of the criminals consisting of the Burmah race were drug users.

The economic side of the drug habit demands attention. The cost to the community in the loss of working capacity must be considerable.

Prevention seems to be the only cure and traffic should be controlled by state laws supplementing the Federal laws, which are at present inadequate since the recent decision of the Supreme Court.

The sale of hypodermic syringes should be forbidden by law to laymen, moreover. The use of morphin as a habit, it is claimed, dates from the introduction of the hypodermic syringe by Wood[7] in Edinburgh, in 1853, and by Bertrand in 1856, and not from its discovery in 1816.

The permanent ill effects of the habit are seen more in character and psychic decline than the physical. The physical condition of the drug user suffers but little. It becomes tolerant and suffers little outside of the emaciation and the general results upon the nutrition which starvation causes. It is true the victim loses weight, and is constipated, pale, his tongue is coated, his skin is sallow, he often suffers from insomnia, but while he is taking the drug there is as a result of the drug itself no pathological change that may be recognized as characteristic. The loss of weight is probably entirely due to the fact that the habitual use of opium setting aside the appetite, the victim eats very little and infrequently and hence loses weight.

Smoking opium, however, produces an irritating effect upon the mucous membrane of the nose, pharynx, and bronchi. The lowered state of resistance predisposes no doubt to intercurrent affections and in some cases insanity ensues.

At first the drug may retard metabolism but soon a tolerance for the drug is established when the effects upon metabolism must be slight. Some effects, however, on metabolism, the blood, and digestion have been observed. Archard, Bénard and Gagneux[8] found that morphin diminished the resistance and activity of the white blood cells.

It was found that in young children the white blood cell was less tolerant than in the adult under the influence of opium.

Reache[9] demonstrated that digestion was retarded in animals and Delcorde[10] proved in dogs that gastric digestion was slowed under the influence of opium.

Valenti[11] found that the serum of morphin-habituated dogs during a period of abstinence when introduced intravenously produced arrythmia, pulse retardation and lowered blood pressure, all symptoms disappearing after morphin was injected.

No special lesion has ever been demonstrated in postmortem examination of drug users. Erlenmeyer quoted Fiedler and Levinstein who found the brain of drug users to be anemic and edematous. On the other hand, Schweniger[12] found slight hypertrophy of the left ventricle, eccentric hypertrophy of the right ventricle, dilation of the pulmonary artery, hyperemia of the intestinal and bronchial mucosa, and edema of the lungs and brain.

The treatment of these cases as to the removal of the drug needs little consideration. It is a comparatively simple matter to remove the drug, and the user admits that he has lost the habit in a few days, meaning by this the abstinence symptoms. Routinely the drug was removed at once, a calomel purge given, hyoscin administered hypodermically, the tincture of belladonna given up to the physiological limit; a cold pack was prescribed for the nervous manifestations; stomach washing was used when the vomiting persisted and, later, hypnotics were employed. In most cases at the end of five to seven days the patient admitted that he felt well.

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[4] Kebler: Report of Philippine Commission, Washington, 1906.

[5] Lichtenstein: N. Y. Med. Jour., 1914, c, 962.

[6] Castor: Jour. Trop. Med., 1911, xiv, 134.

[7] In Erlenmeyer. Die Morphinist, Berlin and Leipzig, 1887.

[8] Archard, Bénard et Gagneux: Bull. soc. d'hôp. de Paris, 1909, xxviii, 958.

[9] Reache: Ztschr. f. Exper. Path. u. Therap., 1914, xvi, 321.

[10] Delcorde: Internat. Beitr. z. Path. u. Therap. d. Ernährungsstör., 1911-12, iii, 24.

[11] Valenti: Arch. f. Exper. Path. u. Pharmak., 1913-14, lxxv, 437.

[12] Schweniger: In Erlenmeyer.

This was the routine treatment of these cases which were all free from organic disease or other disturbances of bodily functions.

In conclusion, the points I wish to emphasize are, first, the inadequate facilities for treating the drug users during the removal period. It can be done in general hospitals but it is not fair to subject other patients to the kind of disturbance that these patients almost always cause. Wards for these patients alone should be provided. Second, the state is not prepared to take care of these cases at present. It is the duty of the state to care for drug addicts just as it is its duty to care for the insane, epileptic and feebleminded. The drug habit is really a social problem as it appears in relation to the Harrison Act, namely among the tenderloin class, and the habit problem can not be divorced from the social problem. Third, the need of proper laws which absolutely prohibit the distribution of habit forming drugs except legitimately by physicians.

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THE SIGNIFICANCE OF SPECIALISM WITH REFERENCE ESPECIALLY TO GENITO-URINARY SURGERY

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(Address delivered before the eleventh annual meeting of the Fifth Censorial District at Boiling Springs, July 25, 1916.)

In this age of marvelous commercial enterprise, when individuals, industries and even nations become at times amazed and embarrassed by the revelations of mechanical and electrical progress, the profession of medicine by its researches and contributions has kept apace. It is unnecessary for me to remind this audience of the epoch-making discoveries characterizing medicine during the past half century. Consider the establishment, on a firm basis, of general anesthesia by ether, chloroform and nitrous oxid; the introduction of the clinical thermometer and hypodermic syringe; the foundation of modern pathology by Virchow—"*omnis cellula e cellula*"; the germ theory of disease as evolved by Pasteur, Koch and Davaine, supplemented by the discoveries of Obermeier, Hansen, Eberth, Klebs-Loeffler, Nicolaier, Fränkel, Pfeiffer, Kitasato and Yersin, Weichselbaum, Neisser, Schaudinn and Hoffmann, respectively, in relapsing fever, leprosy, typhoid fever, diphtheria, tetanus, pneumonia, influenza, plague, cerebrospinal meningitis, gonorrhea and syphilis. Consider also the discoveries respecting the insect-transmitted diseases, malaria, yellow fever, elephantiasis, sleeping sickness and typhus fever; those research luminaries, Buchner, Metchnikoff, Pfeiffer, Ehrlich, Bordet, Theobald Smith, Wright and Wassermann in connection with the principles underlying immunology, including prophylactic inoculation, diagnosis and treatment by bacterins and sera. On the other hand, reflect upon the debt owed by modern surgery to asepsis and antisepsis, initiated by that master genius, Lord Joseph Lister; the revelations of endoscopy, comprising cystocopy, proctoscopy, bronchoscopy, esophagoscopy, etc., and finally the far-reaching and indispensable utility of that most brilliant diagnostic and therapeutic arm of the profession, the Roentgen ray.

Assuredly, no one will deny that these milestones, conspicuous throughout the vista of medical progress, have been erected by special effort, that is by concentration and conservation of energy along definite lines, destined to absorb the time and interest of individuals engaged in various branches of the profession. Thus is specialism born.

Just as the profession of medicine in general has been divided into its main departments, so by virtue of continued research and discovery, must these fields undergo subdivision with the ever increasing wealth of knowledge, if advancement in diagnosis and treatment is to be realized, and this you must concede is inevitable.

Bearing in mind what has been above stated, is must be self-evident to every fair-minded practitioner that the status of medicine would not be what it is today without specialism. Therefore, I take it that no argument is necessary to justify the opinion that specialism is both desirable and essential to medical and surgical progress.

Verily, today, it is a sad vocation that can not boast of a specialist. Within the ranks of our own profession, owing to the plethora of doctors, the demand of modern society and the omnipresent spirit of commercialism, the keenest kind of competition has arisen. New specialties have been conceived and specialists have sprung up even so numerous as Caesar's legions. Naturally, the general practitioner, and to a lesser degree the general surgeon too, have viewed with growing apprehension, and at times unconcealed concern, this trend of events falsely imagined to threaten and undermine their future existence. They have paused and seriously queried: "Has medicine reached the point when we must regard ourselves merely in the light of an intelligence office?" Certainly not, unless selfishness and a total disregard of the Hippocratic oath dominate their professional careers. The story is told of a well-known Philadelphia physician, who in court one day was asked by the opposing counsel if he were a specialist. He replied: "Thank God, no; it takes a dozen specialists to make a general practitioner." This facetious remark had the desired effect, but was obviously irrelevant to the truth.

There is a law in political economy that a bad dollar will drive a good dollar out of the country, because a nation will endeavor to pay its debts with the cheapest money obtainable. Likewise a possible bad egg will prevent the sale of a dozen good ones, and eventually disrupt the market. Similarly, an unqualified, unprincipled practitioner, surgeon or specialist, an optometrist, an osteopath, a chiropractor, a Christian scientist or common quack may do more evil in a given time to injure the profession of medicine, not to mention the welfare of the community, than a dozen competent, honorable practitioners can do good to counteract these evil tendencies. The public is too prone to accept medical services (if such, frequently, they may be styled) just as it is accustomed to purchase commercial articles at cheapest primary cost, irrespective of their intrinsic worth and character. Thus, unknowingly, the layman often adjusts the noose to his own neck; on the one hand, because of his desire to get treated cheaply, since all "doctors" from his viewpoint are equal, and on the other, although desirous of obtaining the best at any cost, he knows not where to turn, and is obliged to accept the proffered services of the most accessible medical attendant. I say *unknowingly,* because a host of patients have no way of determining just where to go for expert opinion for particular maladies. Physicians, owing to the compatibility of selfishness and egotism, too often furnish the reason. The remedy is simple. It is education; frank education of the public concerning medical matters and a proper differentiation of doctors.

Obviously, the specialist with his added years of preparation, here and abroad, and expensive equipment, neither has the inclination, nor is he able to compete financially with the cut-price disreputable practitioner, optometrist, osteopath, quack or what not. The patient too little realizes that, as a rule, when expert attention is clearly indicated, the cost would be no more in the long run, in fact often less, by consulting a specialist, than by patronizing a selfish, incompetent, cheap general practitioner, not to mention the saving in time required for convalescence, and often, by procrastination, the unnecesary sacrifice of life and limb or chronic invalidism.

In this ultra-scientific age, it has been alleged that the modern physician is less skilful than his predecessors in the matter of clinical diagnosis, in so far as history and physical examination of patients are concerned. Whether or not this be true, due to routine and often unwarranted recourse to special and supposedly pathognomic aids as the Roentgen ray, serologic tests, cystoscope, etc., it necessarily leads, first to neglect of the time-honored keen physical examinations that have made many well-known physicians famous; and second, by an illogical reversal of diagnostic measures, calling unnecessarily on supplementary aids primarily, it subjects the patient to an avoidable expense — an item, in view of the modern high cost of being sick, of considerable moment.

Specialism, on the other hand, is not beyond reproach, and merits, I regret to acknowledge, some of the disfavor and suspicion heaped upon it by many general practitioners. Aside from the disparaging errors of professional ethics carelessly committed, it behooves the specialist to purify and elevate the rank and file of his particular chosen field. Specialists are divisible into two groups. The larger group is composed of men of recognized ability and success, who, after a few years of general practice, medical or surgical, by virtue of their own inclinations or on account of association and apprenticeship with a master, or possibly as the result of an internship of a year or two in a large general hospital, develop a liking for some special line of work. Both the progressive general practitioner and the recent hospital intern must then devote another year or two to special postgraduate preparation either abroad, at home, or preferably both. These, particularly the men primarily qualified by a number of years of general practice, are the efficient, reliable and charitable specialists in whom implicit confidence can be placed. The minority group is constituted by a certain percentage of individuals, often disgruntled or dissatisfied with their success in general practice, or who, indeed, have actually failed and desire to take another stab at the Aesculapian serpent. These are the fellows who pose in some particular line after returning home from a week's sojourn at the Clinical Congress of Surgeons of North America, or regard themselves as qualified to practice a specialty after a six weeks' course in one of our postgraduate hospitals. None the less reprehensible is the conduct of a few who seek prestige by a trip to European capitals, ostensibly to pursue special work, but who in reality spend most of their time following the siren voice of pleasure in the various metropolises, residing in one place not long enough to be enrolled in the best courses, striving a large part of their time to obtain certificates of instruction from professors, whose language they little understand, and departing for the next city on the itinerary, so soon as the sight-seeing is completed.

Enough has been cited to show you that the training of the specialist is a very lax and indefinite matter, permitting of untold impositions on both the profession and the public. Time prohibits a detailed statement of the *pros* and *cons* relative to this important matter, but I should like, today, to sow the thought that it is high time for the medical profession to take definite steps for the organization of postgraduate teaching in this country. I know of no city comparable to Philadelphia, where the golden opportunity exists, by virtue of the recent medical school merger. The material and facilities are at hand for postgraduate instruction, general and special, second to no other center in the world. Would it not be feasible to grant a secondary degree for proficiency in certain lines of postgraduate study, designating the qualification of the prospective specialist? Should the commonwealth not demand a special license from qualified specialists for the protection of its citizens against inefficiency and unscrupulous graft? Thus it may become a serious problem, whether or not, for the enlightenment and satisfaction of the public, we should be designated by some title or degree, specifying general practitioner, or surgeon, or specialist, and in case of the last, whether genito-urinary, orthopedic, rectal, eye, ear, nose and throat, etc. This, for the greatest efficiency of our profession to humanity, as well as for reflection of greatest credit upon our unselfish (?) vocation, is a matter not difficult of solution, that can engage the attention and energy of the American Medical Association none too soon, for I trust the time is not remote when such a regulation will be realized. Already surgery has thus been rewarded through the commendable efforts of the American Congress of Surgeons.

Surgery is no longer a heroic procedure, based fundamentally upon dexterity and speed of wielding the aseptic scalpel, but for its highest attainments it must be founded upon a conscience supported by a profound knowledge of anatomy, physiology, bacteriology, immunology and living pathology. These qualifications are only possible by an extended preliminary special training with the relevant experimental, laboratory and diagnostic methods. A surgical conscience thus endowed is indomitable and avoids the majority of "surgical mistakes," cripples and derelicts. Granted that the exploratory incision is occasionally justifiable and necessary, as a rule it is excessively abused, leads to atrophy of known reliable clinical and special methods of investigation and signifies diagnostic incompetency on the part of the operator. It is extremely reprehensible that our daily roster of operations should abound with such expressions as sectio alta, gallbladder disease, pelvic disease, plastic and section, exploratory incision, etc. It usually signifies that the surgeon has not either the time or the ability properly to study and diagnosticate his case before undertaking treatment. How much better for the profession and humanity would it be for the operator to stand or fall on definite diagnoses. It is seldom that the specialist is guilty of this carelessness or negligence. The sole exception is the gynecologist, who, in growing realization of the narrowness of his chosen field, by his own acts in attempting to steal the cream of abdominal surgery and by wilful neglect to advance treatment along the lines for which his specialty had its inception primarily, has sealed his own fate, and it is only a question of time until his allotted sphere becomes absorbed by urology and obstetrics.

There is no more disheartening experience than that realized by the specialist in his first reception to the train of patients, poorly and often shamefully primarily treated. Alas for that army of innocents numbered only by their silent tombstones!

Far be it from me to intimate that the general practitioner or surgeon does not practice his profession intelligently and with average ability in accordance with the legal requirements. Such is unquestionably the case, but the thought persists that laymen, did they know the facts, in many instances would demand more than *average* results. Specialism is calculated to produce better than the average, as I shall hope to show; otherwise it has no excuse for existence and the sooner it becomes extinct the better. I trust I am prompted by purely altruistic motives in my desire to emphasize the fact, that commonly the best results and lowest mortality to patients are not realized. A surgeon to one of our hospitals asserts that 45 per cent. of his surgery consists of reoperations, and that 95 per cent. of deaths is due to human errors. This is appalling and, if it be true, is a shameful blot on our profession.

The surgeon famous for the great number of cases operated on may be little more than a human carpenter. As a rule, his time is so engrossed in the operating room that he is unable to afford that personal contact with patients necessary for the best results and the development of new ideas conducive to surgical progress. Moreover, careful investigation will show that his operative results are no better than, in fact often inferior to, those of any first-class surgeon who has the time to study his cases conscientiously before operation and to follow them postoperatively. The reason is obvious. A division of responsibility unconsciously arises. The operator blames, perhaps silently, his subordinate for an incorrect diagnosis leading to an unwarranted operation. The assistant assigned to the postoperative treatment of the patient has not the keen interest in his welfare that should be assumed by the operator, and an increased mortality rate is inevitable. Successful surgery, on the contrary, is not dependent upon the number of victims carved and chiseled, but rather upon masterful judgment and skill evolved from crystallized experience, with even limited material.

Specialism in surgery implies more than success. It demands the best results and lowest mortality attainable by human skill. The specialist must give personal attention to his cases before and after operation. He must be thoroughly familiar with the details of diagnosis in all its ramifications (no mean art itself so far as genito-urinary surgery is concerned) as well as a competent master of all phases of treatment. The fundamental difference between a specialist and a general surgeon is that the former does the work himself and shoulders the entire responsibility; the latter surrounds himself with and is dependent upon subordinates, often insufficiently experienced, whose opinions, urological and otherwise, routinely he is constrained to accept unequivocally, and on whose judgment, ofttimes, he falls disgracefully. The expressed opinion of the vast majority of surgical attachés called upon by their chiefs, irregularly and infrequently, to examine patients cystoscopically, in 90 per cent. of instances is not only not worth the paper on which the report is written, but in not a few cases is criminally, if not mortally, erroneous. This is due to the fact that their experience is too scanty to permit of trustworthy opinion. I know of no field, diagnostically, where experience and a knowledge of living pathology are more paramount and vital for correct judgment.

I am assured by other representatives of the surgical specialties that the conditions obtaining for genito-urinary surgery exist likewise for them. Indeed, this is logical and admits of no debate. By virtue of more intimate knowledge of the facts pertaining to genito-urinary surgery therefore, I shall uphold this specialty for a few moments for your consideration. Time forbids that I enter into a discussion of all the details of this broadest of all specialties, and since it will subserve the purpose to illustrate the real object of these remarks, I shall direct your attention merely to two notable operations, prostatectomy and nephrectomy.

In order to obtain reliable and definite comparative figures for these two operations, recently I reviewed the operative reports of twenty-six representative general hospitals throughout this and neighboring states with the result that in 148 prostatectomies for the year, there was a mortality of 22.5 per cent. and in eighty-eight nephrectomies, a mortality of 25.9 per cent. Compare with these, if you please, the mortality rate, 4.33 per cent. for 1,375 prostatectomies by eight of the world's foremost genito-urinary surgeons, or 7.7 per cent. for 259 nephrectomies by representative specialists.

Viewed from every angle, therefore, the crying demand of progressive medicine is specialism; not only specialists in every community, but also and particularly special hospitals. I refer especially to the urgent need of a genito-urinary or urological hospital in each large city, a need, barring sentimentalism, more acute than that for eye, stomach, tuberculosis and cancer hospitals. The inadequate equipment of the average general hospital for special surgery is only too well known, and doubtless accounts for a certain percentage of the death rate.

It is high time that some missionary education be instituted, particularly education of medical students, general practitioners and the public. I cannot believe that the boards of directors of our general hospitals, if they be shown the figures, will close their eyes to the fact that 75 to 80 per cent. of the deaths due to prostatectomy and nephrectomy is avoidable. I am sure when this becomes fully realized that action will be taken to divest general surgeons of some of their nefarious practices by creating when indicated and, if already in existence, to protect the department of genito-urinary surgery as other specialties, by insuring to their respective services those cases to which they are justly, and for the sake of humanity, entitled. In a few institutions this evil does not exist, but in the vast majority, the proper division of labor for the greatest conservation of energy and the patient's best welfare is not practiced and in many quarters there is little or no prospect of a change. The solution to the problem is the erection and endowment of special hospitals. Here is a real charity, worthy of the serious thoughts of our public-spirited, wealthy philanthropists, whereby mortality, not to mention cripples, can be reduced three-fourths to four-fifths.

You have heard of the advantages of specialism accruing to the community and the profession. Before concluding my remarks I desire to say a few words concerning (1) specialism as a benefit to the general practitioner and surgeon, (2) the proper relationship between specialist and family doctor, and (3) the attitude of the general practitioner to the specialist.

It is probably little appreciated by the general practitioner that he owes a considerable debt to the specialist for the knowledge he unconsciously acquires. This may be only through infrequent consultations, but it is quite common through the medium of books, journals, reprints and various local society meetings. Lastly he should remember that he is always a welcome guest at the scientific sessions of the annual meetings of the various associations of specialists.

The antagonism prevalent for the specialist by the family doctor is often well deserved. It is always unfortunate and can be obviated by care, courtesy and honesty. Ethically, it is proper for the specialist to treat, without consulting the family doctor, the patient who voluntarily visits his office, but it is not destined to inculcate the friendliest relations, and the specialist is the loser for his indiscretion. The specialist should take pains to direct his treatment solely to the conditions for which the patient was referred. He should never refer the patient to another specialist without the consent of the family doctor. The specialist's first question to the patient should be: Who referred you? If not the family doctor, his second query should be: Who is your family doctor? These should be entered at the top of the patient's history card, and with the conclusion of the examination the specialist should write the referee stating his findings and recommendations, also that his treatment of the case will be confined solely to the special condition present. If the patient be a hospital case, on his discharge the specialist should again write the family doctor outlining any supplementary postoperative suggestions deemed advisable.

On the other hand, what should be the attitude of the general practitioner toward the specialist? The answer is: First, by observance (*a*) of justice to the patient's best welfare and (*b*) of honesty to personal convictions; and second, by avoidance of brotherly distrust, selfishness and supersensitiveness. The majority do this but how about those egotists intoxicated with their own self-sufficiency and importance, who will attempt anything once and are dismayed by nothing? If the patient lives, their egotism knows no bounds; if he dies, it is undiminished. They are never known to require a consultation, unless the patient's relations become frightened and demand it, or when the patient has one foot in the grave and the outcome is inevitable, when a consultation means shifting or at least the division of responsibility.

In conclusion permit me to leave with you for germination two thoughts applicable alike to specialist and general practitioner. First, the encouragement of specialism, for by it only is advancement in our profession possible, and, second, the cultivation of charity and honesty toward your fellow practitioner.

116 South Nineteenth Street.

SOME PATHOLOGIC CONDITIONS OF THE MOUTH OF INTEREST TO THE PHYSICIAN AND DENTIST

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(Read before the Luzerne and Lackawanna Dental Society, April 17, 1916, and the Bradford County Medical Society, April 18, 1916.)

Oral infection has for some time been receiving considerable attention as an etiologic factor in the production of systemic disease. Textbooks could be written on this subject, but I will endeavor only to skim over the surface, and call attention to some of these lesions which are important to both physician and dentist. The first step in avoiding these conditions is prevention, and this preventive work should begin at a very early age. Unfortunately, the average mother does not appreciate the necessity of preserving intact the deciduous denture, and for this woeful lack of knowledge the physician and the dentist are both responsible. This condition of affairs is due largely to the failure to educate many in both professions to the importance of the deciduous teeth. The physician has a far greater opportunity than the dentist to educate the mother, and to insist that children of this age should receive dental attention, therefore the medical profession should be urged to lay more stress on this phase of the subject than has heretofore been the case.

There are twenty teeth comprising the deciduous denture, and these when fully erupted should bear a definite relationship both to each other and to the opposing arch, which relation is known as "normal occlusion." From the completion of the deciduous denture a period of from three to four years elapses before the first permanent tooth—"sixth-year molar"—makes its appearance. During this period, however, the arches should continue to expand, and spaces should appear between the incisors. At this time, and with the eruption of the first molar, we observe a broadening and lengthening of the face. This change will not occur unless the deciduous teeth of the jaws are in contact and perform their normal function of mastication. If cavities appear in the deciduous molars and are neglected, the teeth immediately crowd together; this disturbs proper articulation with the opposing arch, and results in abnormal facial development and irregularity of the permanent denture because of insufficient space to accommodate the second teeth. Moreover, this irregularity will have great effect on the function of speech, which develops coincidently with the deciduous denture.

RELATION OF THE TEETH TO THE ORGANISM AS A WHOLE

The relation which exists between the teeth and the organism in general is exceptionally striking at this time. This relationship is shown by the effects produced by hereditary syphilis, measles, rachitis, scarlet fever, etc., on the teeth. If these cases do not receive attention the usual result is fistulas, with pus discharging into the mouth, infection in the region of the tonsils, adenitis, etc. Therefore every child, preparatory to a tonsillectomy, should have the mouth put in as cleanly a condition as possible, which preparatory measure would probably do away with much of the sore throat which frequently follows these operations. Osler states that the bases of the majority of fatal diseases are laid before the individual reaches the age of nine years, and I believe the same authority states that the most important hygiene of the child is mouth hygiene. Therefore, assuming that every unfavorable influence will have its effect on dentition, even from the embryonal period up to puberty, the necessity of care and attention even under the best constitutional conditions is at once apparent.

MOUTH CONDITIONS IN SCHOOL CHILDREN

In examining the children of one of our public schools for two years in succession, the conditions met with were appalling. Over three hundred children from 9 to 12 years of age were examined, and but one was found who had received dental attention other than extraction, and not one owned a toothbrush. The average picture of such a mouth usually presents several cavities filled with decomposed food, which is crowded down around the gum tissue, one or two abscesses with fistulas discharging into the mouth, serum oozing from the margins of the gums—altogether an ideal incubator for pathogenic bacteria. In Bridgeport an examination of 4,500 children in the first and second grades revealed 26,000 cavities in the deciduous teeth. Three years ago a dental dispensary was established at the Wilkes-Barre city hospital, and up to Jan. 1, 1915, 4,562 children received free treatment, 7,475 operations of different kinds having been performed, but unfortunately probably 10,000 to 15,000 children had to be turned away. It is absolutely necessary that more dentists become interested in this work and offer their services. These conditions clearly show the necessity of the dentist's taking up the care of the teeth at a very early age, for infection is more frequent during the eruption of the deciduous teeth than of the permanent teeth. Notwithstanding the fact that the latter depend on the first teeth for normal occlusion, in cases where dental treatment is impossible, extraction should be insisted on as the lesser of two evils, when we consider the serious possibilities which may follow retention and subsequent infection of these members. The same view applies to the hospitals. In examining the mouths of ward patients it is difficult to understand how the physician in charge could expect an already impaired constitution to withstand the attacks of the horde of micro-organisms which such a cesspool usually presents. The day is not far distant, we believe, when every self-respecting hospital board will be compelled to include in the personnel of its staff a competent dental surgeon.

ALVEOLAR ABSCESS

Aside from infections of the tonsils and sinuses there are two different types of chronic foci associated with the mouth, i. e., pyorrhea alveolaris and periapical or alveolar abscesses. The latter are by far more dangerous as the more common cause of systemic disease, and are usually discovered only by the aid of the Roentgen ray, as they seldom cause the patient any discomfort whatever. Either type may be produced in many ways, some authorities claiming that the majority of these teeth are first infected via the blood stream. However, clinical evidence tends to bear out the opposite theory, i. e., that infection is introduced through the root canal in a great majority of these cases. Basing conclusions on the examination of a great many Roentgen-ray pictures, we believe it is safe to say that the great majority of these abscesses are found at the apices of roots the canals of which have been imperfectly filled.

Infection of the periapical area or pericemental membrane may be due to the death of the pulps in untreated teeth; it may be produced by irritating antiseptics introduced by the operator in an effort to disinfect the canals, or from faulty technic—not observing asepsis during the process of devitalization of the pulp and failing to fill the root canal to the extreme end; by handling the cotton dressings—wrapping the cotton about the broach with the fingers; or by failure to adjust the rubber dam, thus allowing infection to be introduced from the mouth and surrounding tissues. The space about the root end seems to be specially favorable to the growth of streptococci, these being the organisms always present in chronic root abscesses, usually one of the salivarius group, either viridans, hemolyticus, or mucosus, the viridans showing green, the mucosus gray and the hemolyticus red on blood agar. These areas have no limiting membrane, hence the toxins and bacteria are free to circulate in the blood and lymph streams.

ROSENOW'S TRANSMISSION THEORY

Rosenow has done much to demonstrate the method of transmission of these organisms, usually through an embolus or as a direct infection, and the effect which environment has on them. Thus we meet different reactions under different surroundings, which accounts for the chronic abscess suddenly becoming acute on opening the pulp chamber even under the most aseptic conditions possible. This also accounts for the fact that the streptococcus, which may be transmitted from the alveolus to the knee joint, appears to be of an entirely different strain from the original, and when injected into an animal may produce an arthritis, while the organism from the original focus would not. Rosenow has also shown that the most common result of these infections is the chronic joint condition, or rheumatoid arthritis, followed closely by endocarditis and other diseases too numerous to mention. It is at once observed that this operation must be made an aseptic one from start to finish, and that every foramen must be hermetically sealed to prevent reinfection, which operation cannot usually be accomplished without the aid of the Roentgen ray, and even then the percentage of failures will prove discouraging.

ROOT-CANAL TECHNIC

I recently heard one of our members say that he did not believe asepsis possible in the devitalization of pulps and filling of root-canals. I wish to outline briefly the technic of an aseptic operation. The devitalization is accomplished by means of conductive anesthesia, using novocain-suprarenin, thus doing away with any hyperemia in the periapical region which might result from the use of pressure anesthesia. Arsenic has absolutely no place in dentistry. One of the evil effects which may follow its application is shown in Figures 1 and 2.

First the rubber dam is adjusted and the area about the tooth painted with 70 per cent. alcohol, followed by iodin dissolved in benzol. The area should be bathed with 70 per cent. alcohol, at frequent intervals throughout the operation. The broaches are sterilized in boiling water and placed in a flat porcelain dish containing 70 per cent. alcohol. After using them and wiping off as is done with a Kerr broach, they are placed upon the bracket until a considerable number have been used, whereupon the assistant again boils them and places them once more on the tray. Thus, by using a sufficient number, the operation need not be delayed while sterilizing the broaches. Bibulous paper points are used, and these can be sterilized in a formaldehyd sterilizer or preferably in a sterilizer combining superheated steam and hot air, the effect of the air being to quickly dry the points. The cotton dressing can also be placed on broaches and sterilized in the same manner previous to the operation. The pliers, etc., can be sterilized almost instantly in the alcohol flame, then dipping them in alcohol.

SODIUM-POTASSIUM AND SULPHURIC ACID

Sodium-potassium is used to open the canals. Rhein's picks are of great service in locating those canals the openings of which cannot be readily found. Sulphuric acid about 40 per cent. is used to enlarge the canals after the method of Callahan. The caustic alkalies, sodium and potassium, dissolve and break down the organic matrix, and are of great aid in revealing the anterior canals of lower molar teeth and the buccal canals of upper molars. The sulphuric acid attacks the inorganic substance or lime salts, but at the same time unites with the organic material, forming a new compound which inhibits its further action and makes it self-limiting. This explains the futility of sealing sulphuric acid in the canals. (Cassidy's "Dental Chemistry and Materia Medica.") The acid attacks the inorganic portion, forming insoluble $CaSO_4$, at the same time dehydrating the animal matter, which is composed mainly of carbon, hydrogen, and oxygen. The latter two, hydrogen and oxygen, having been removed by the dehydration, the indestructible carbon is left to combine with the insoluble sulphate, and forms a protecting covering for the unaffected portion beneath. This carbon must be scraped away with a roughened broach to obtain further action of the sulphuric acid. The use of the acid is followed by sodium bicarbonate, which, in effervescing, brings much of the débris up into the pulp chamber. The canals are washed with hydrogen dioxid and mercuric chlorid (after Rhein—$HgCl_2$ 1¾ grains to two ounces Marchand's H_2O_2). Dry, sterile dressings are placed in the canals and pulp chamber and sealed in with a temporary cement. Previous to filling, the canals are dehydrated, first with 70 per cent. alcohol, then with 95 per cent. alcohol and lastly with acetone. They are then dried with hot air, which may be instantly sterilized by passing it over the platinum coil, if the latter is allowed to become hot before the air is turned on.

As an aid in the opening and filling of these

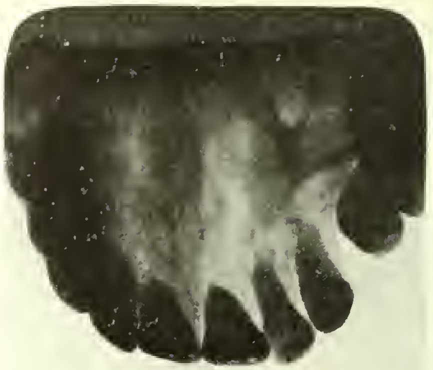
Fig. 1.—Arsenical necrosis originating at apex of first bicuspid. Right maxilla and floor of antrum lost.

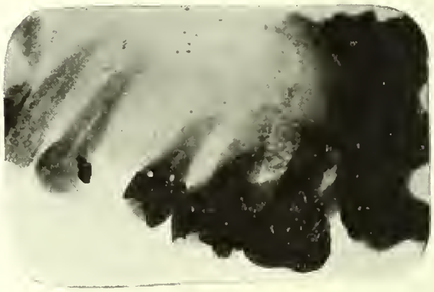
Fig. 2.—Same as Fig. 1. Lateral view.

Fig. 3.—Wire shows canal partially opened.

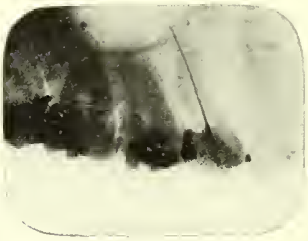
Fig. 4.—Wire shows canal completely opened to apex.

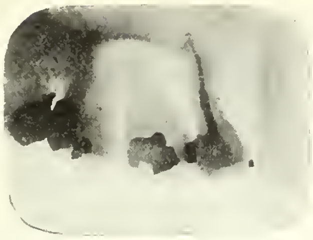

Fig. 5.—Same as Figs. 3 and 4. Root canal filled with gutta percha.

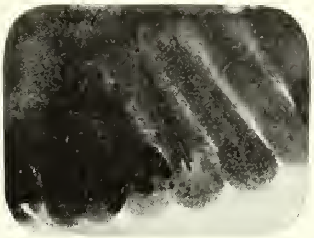

Fig. 6.—Wires show canals of first bicuspid completely opened. Rarefaction of apex of second bicuspid, the canal of which is imperfectly filled.

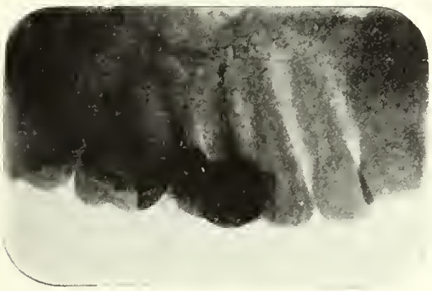

Fig. 7.—Same as Fig. 6. Root canals filled with gutta percha.

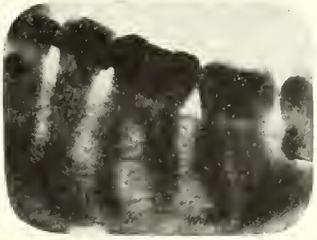

Fig. 8.—Wire showing canal opened to apex.

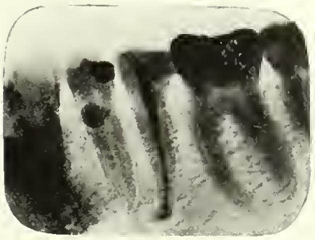

Fig. 9.—Canal filled with gutta percha. Note encapsulation of apex.

canals, the Roentgen ray is frequently resorted to. The use of wires in constricted canals is of great assistance both in altering the direction and preventing perforations. (See Figs. 3, 4 and 5.) These wires are of assistance in determining the length of the canal, and in no other way can the operator always be sure as to whether the foramen has been reached, or passed. (See Figs. 6, 7, 8 and 9.)

The roots shown in the illustration were filled with gutta percha dissolved in chloroform, the chloroform being evaporated and the filling condensed at the same time by tapping. You will observe the buttons or encapsulations at the root ends. (See Figs. 10, 11, 12, 13, and 14.) Some of these may seem large, but I have radiographed these teeth months after the filling was inserted, and see no cause for anxiety. I am at least assured that the foramina at the root end, be there one or ten, are hermetically sealed against reinfection from the blood stream. The regeneration of bone is strikingly shown in Figures 15 and 16. The first bicuspid had been filled approximately three months before the second bicuspid, the picture being taken when the latter was filled.

Some authority has stated that 90 per cent. of all roots present multiple foramina—usually two to seven. One can seldom determine when one has exactly reached the root end with the filling, and I would rather go through the apex than not far enough. Paraffin and bismuth do not show up under the Roentgen ray as they should, and for this reason have been discarded by the essayist. This may be due to gravitation of the bismuth when the paraffin is melted. The so-called antiseptic pastes are not moisture-proof, and are not permanently antiseptic. I have slides of one mouth showing ten abscessed roots, all of which were filled with "pustolene," and all supporting beautiful porcelain crowns. These pastes do not fulfil the requirements of a perfect root filling, and the fact that teeth so filled do not give trouble is no recommendation for the filling material. Moreover, most of these materials do not show up on a Roentgen-ray film. Callahan's combination of chloroform, rosin, and gutta percha seems to fulfil all requirements, and penetrates the dentin to a greater extent than any other material.

STERILIZING INSTRUMENTS USED

The broaches used in applying sodium and potassium and sulphuric acid are the tantalum broaches made by the Twentieth Century Broach Co. These broaches have been left in sulphuric acid as long as three days without being affected. The triple-x fine smooth broaches are first used in all canals, and are by far the most reliable for this work of any I have seen. This is followed by a double-x fine smooth, and then a triple-x fine barbed broach is introduced for the purpose of removing the pulp tissue. The syringe used in washing the canals is all glass, and is kept in a large-necked bottle of 70 per cent. alcohol. The needle is made of iridio platinum and can be instantly sterilized in the flame. The burs used for cutting away the pulpal walls are kept in an ordinary porcelain burholder filled with lysol. Any solution over 3 per cent. will not affect the metal.

ZINC IONIZATION

Zinc ionization is used as the method of sterilization in the case of diseased teeth. This is accomplished by means of a galvanic current, which is passed through the root canal and into the diseased area about the root end by means of a zinc wire inserted into the canal but not through the foramen, the cathode being placed on the wrist or on the cheek under the rubber dam. The antiseptic ions penetrate all the diseased tissue about the root end. Root resection is not resorted to unless the end of the root is necrotic.

DIAGNOSIS

It will not be out of place to outline the procedure which should be followed in cases of obscure etiology. First, after observing the general appearance of the mouth and making a careful examination for pyorrhea, every tooth should be tested with the faradic or high-frequency current, and all those teeth which do not respond to the current or are doubtful should be radiographed. I prefer the small dental film for these individual teeth, as a much clearer picture is obtained. By testing with this current the patient is not put to the expense of the six or more films which would be necessary to give a clear picture of the whole mouth. These individual films should be supplemented by a plate of each side of the mouth, the tube being directed slightly posterior to the ramus. This will show up conditions which would not be revealed by the small films, such as cysts, teeth in the antrum, and like conditions. By placing one finger in the floor of the mouth and the fingers of the other hand under the chin any abnormal conditions in this region can be detected.

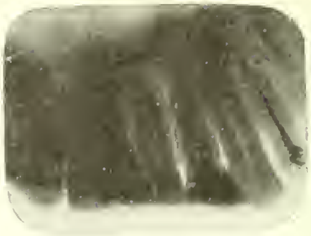

Fig. 10.—Wires showing canals of first bicuspid completely opened.

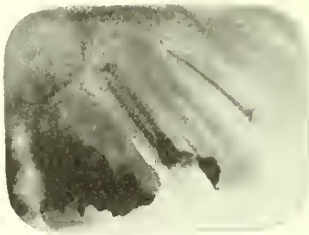

Fig. 11.—Same as Fig. 10. Root canals filled with gutta percha. Note imperfect filling in canal of lateral incisor.

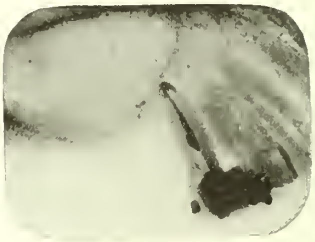

Fig. 12.—Root canal filled with gutta percha. Apex encapsulated to prevent reinfection.

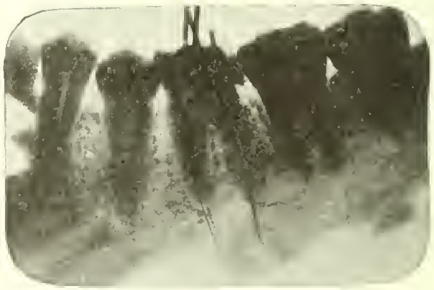

Fig. 13.—Lower molar with four canals. Wires showing canals opened to apices.

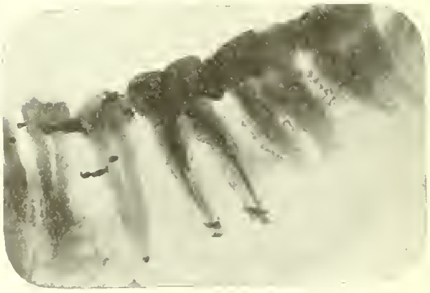

Fig. 14.—Same as Fig. 13. Gutta-percha canal filling protruding through apices.

PYORRHEA ALVEOLARIS

Without going into details regarding the treatment of pyorrhea from the standpoint of the dentist, it is not out of place to mention its importance as a possible cause of systemic disease. The most logical conclusion at the present time seems to be that the endamebas act in symbiosis with other micro-organisms, especially streptococci and spirochetes, in causing this condition. One case of subacute arthritis, in which pyorrhea was the only focus of infection found, and in which the streptococcus was the predominant organism, improved, as did also the pyorrhea, following the administration of an autogenous vaccine. However, the pyorrhea recurred in a short time, with the endameba as the predominant organism. On the local and subcutaneous administration of emetin all symptoms of pyorrhea have disappeared, and to date have not returned, and a most marked improvement in the arthritic condition resulted. The teeth were scaled at the first visit of the patient, and the result was a most acute attack of arthritis, which lasted for two or three days, due to the breaking down of granulations at the bottoms of the pockets. Rosenow has shown that arthritis, neuritis, toxemias, etc., are many times definitely associated with pyorrhea and caused by the streptococci present in pyorrhea. While the endameba is not found in these remote parts of the body, yet it may act locally on the streptococcus or some other germ, and prepare it for its invasion of some distant organ or tissue. The difficulty of locating these pockets is usually underestimated, and many times they are found only by careful instrumentation. Therefore the physician should depend on the dentist to locate them, and in these cases the radiograph is again of great value. A most painstaking examination should be insisted on. Without going into the relative merits of emetin, vaccines, mercuric succinimid, or of any other method of treatment, I believe all or any one of these methods must be supplemented by a most rigid prophylaxis.

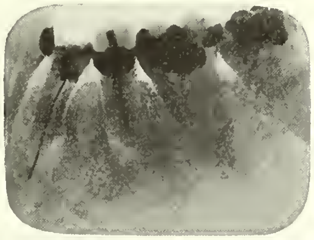

Fig. 15.—Rarefaction about bicuspids.

ETIOLOGY

There is no doubt that systemic conditions have a great deal to do with the production of this disease, and for that reason the constitutional side should not be overlooked. There are undoubtedly many varieties of this disease, such as diabetic pyorrhea or that form associated with gastro-intestinal intoxication. Thus a urine analysis and a careful examination by the physician should form part of the routine procedure in diagnosing these cases. When we consider that in every mouth we have thirty-two teeth, each having from one to three roots, any or all capable of supporting a chronic abscess; that we have thirty spaces between the teeth and thirty-two open alveoli capable of harboring food, incubating bacteria, and transmitting this infection to each other; and when this area is estimated in square inches and the amount of tissue that may be secreting toxins into the blood stream or into the mouth to be swallowed is considered, what a prolific source of infection it all is to the system in general!

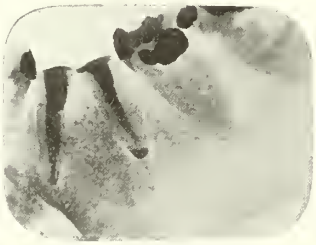

Fig. 16.—Same as Fig. 15. Canals completely filled with gutta percha. Regeneration of bone almost completed.

A patient with pyorrhea is constantly ingesting pus and bacteria during the process of eating, and, irrespective of the acidity of the stomach, bacteria are present in almost every case. Less than 20 per cent. of adults have healthy mouths, and in an infected mouth there is a tendency for the secretions to become acid in character. This creates an additional danger, as acid-bathed surfaces are predisposed to cancerous growths. The continued swallowing of pus causes gastric disturbances and their sequelae. Craige, of the Neurological Institute of New York, at the meeting of the American Medical Association in June, 1914, stated that he was persuaded that peridental infection was an etiologic factor in mental diseases, and that he had witnessed case after case of profound depression clear up after draining several alveolar pus pockets. Keys of St. Vincent's Orphanage states that there has not been a case of infectious disease in that institution for more than two years, and, so far as he could determine, this condition could be attributed entirely to good dentistry.

CROWNS AND BRIDGES AS A CAUSE OF PYORRHEA

In examining a mouth I am suspicious of every crown and of every bridge, as most crowns are placed on devitalized teeth which, in the majority of cases, will show abscesses at the ends of the roots. In addition, almost every gold crown will, on pressure, show a line of pus at the gum margins. It is safe to say that perhaps 95 per cent. of them are entirely unnecessary since casting has been perfected as it is today. Furthermore, these bridges with porcelain facing are usually jammed up into the gum, covered with a filthy accumulation of several years' standing, and on removal the odor from most of them will permeate the whole office.

DISEASES CAUSED FROM MOUTH INFECTION

Many cases of nephritis may be due to streptococcal mouth infections, as this disease has been produced in rabbits by inoculation of streptococci obtained from the mouth. In regard to the circulatory system, many cases of endocarditis and pericarditis, especially those associated with rheumatism, may have relation with mouth infection. As to arteriosclerosis, any long-continued intoxication, such as that associated with mouth infection, may well play its part in the little understood etiology of this widespread disease. Regarding the blood, Hunter showed long ago the connection between anemias and mouth infection. Indeed, the writer has direct knowledge of a case of acute lymphatic leukemia associated with anemia in which the only point of infection was a terrific suppurative alveolitis, diphtheroid germs from which, when injected into a rabbit, caused development in the blood of exactly similar lymphocytes. The relation between mouth infections and the nervous system should also not be overlooked. Cases of neuritis, especially sciatica, not only those associated with pain but those exhibiting sensory disturbances, as well as paralysis, particularly when localized, may be directly associated with mouth infections. Rosenow has shown that this same streptococcus may cause herpes zoster or shingles, by infection of the posterior root of the Gasserian ganglion. Possibly as many cases of neurasthenia can be explained on the ground of a general intoxication due to streptococci and associated germs as are due to tuberculosis. Concerning the gastro-intestinal tract we must consider tonsillitis, indigestion, ulcers of the stomach and duodenum, and cancers resulting therefrom, colitis, cholecystitis and appendicitis. Within my knowledge the latter two have been produced in rabbits by inoculation with the streptococci from pyorrhea. Certainly, in cases of the respiratory tract, pyorrhea would be a natural source of the very common secondary streptococcic infection in tuberculous cases. Indeed, these infections have been treated successfully by vaccines made from pyorrheal pus. Relative to the muscles, tendons, bones, joints, etc., all myosites, such as lumbago, muscular rheumatism, all cases of bursitis, tendonitis, all cases coming under the head of arthritis deformans or rheumatoid arthritis, should receive consideration. Therefore it is imperative that the physician give these mouth and head conditions careful consideration when searching for the original focus of infection in obscure cases, and, too, that the dentist do his utmost to eliminate these horrible conditions which exist in the mouths of so many of our patients.

EXPERIMENTAL INVESTIGATIONS

The following is a record of some of the bacteriological investigations and results of animal experimentation obtained with the streptococcus from pyorrhea cases:

Mrs. K—. Subacute arthritis, small joints of extremities, ankles, knees, wrists, and elbows involved; high fever, rapid pulse, prostration. Only focus of infection found, pyorrhea. Bacteriological investigations: The joint fluid showed streptococcus mucosus; blood, streptococcus mucosus; pyorrhea, streptococcus mucosus. Experiment: Streptococci from gums injected into rabbit, no specific lesion developed in six weeks. (However, this same organism aspirated from the joint might produce arthritis in the rabbit.)

Miss M—. Chronic anemia; pyorrhea, and three apical abscesses, streptococcus; no further differentiation. However, a stock vaccine of streptococcus caused a marked exaggeration of subjective symptoms. Later the removal of the teeth improved the blood and general condition.

Woman. Chronic arthritis deformans of the fingers; apical abscesses. Bacteriological investigation showed streptococcus viridans. Vaccines caused a decided reaction in both joints of fingers and alveolar process.

Man. Lumbago; focus of infection was an apical abscess about the first bicuspid (See Fig. 17.) Bacteriological investigation showed streptococcus mucosus. Removal of the tooth and a few vaccine injections caused the disappearance of all symptoms. Animal experiment: Injection in rabbit caused suppurative arthritis of various stages in different joints. This germ was obtained from the infected joint of the rabbit. Coincidently, the three teeth shown in Figure 18 were opened and ionized. Figure 19 shows the same after the canals were filled.

Miss —. Headaches, neurasthenic syndrome, pyorrhea, apical abscess. Bacteriological investigation showed streptococcus, strain undetermined. Experiment: Vaccines caused an exaggeration of all symptoms, removal of teeth caused headaches to disappear, gain in weight, and very slow general improvement.

Mrs. S—. Deltoid bursitis of left shoulder. Roentgen-ray examination revealed ten abscesses about the roots of the teeth. Stock vaccine caused relief from pain, which later returned. Upon drainage of the abscesses and extraction of one tooth no further recurrence has been noted in nine months.

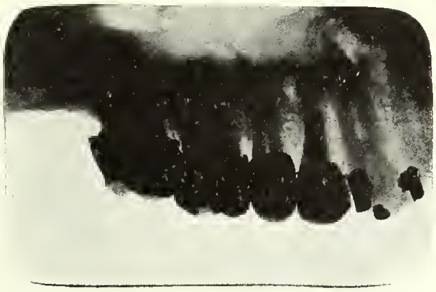

Fig. 17.—Diseased areas about apices of canine and first bicuspid. Pus-producing fillings in molars, protruding into interproximal spaces. (Streptococci from bicuspid, injected into rabbit, caused suppurative arthritis of various stages in different joints. This germ was obtained from infected joint of rabbit.)

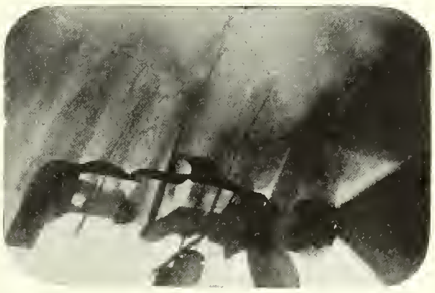

Fig. 18.—Wires showing seven root canals opened.

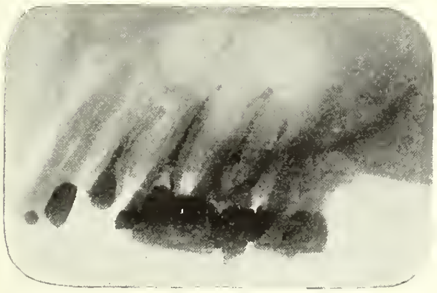

Fig. 19.—Same as Fig. 18 after ionizing and filling canals

I wish to express my appreciation of the valuable assistance which Dr. A. T. McClintock has rendered me in this work.

68 West Northampton Street.

SHALL PHYSICIANS BE ALLOWED TO CARRY MEDICINE?

Some of our medical editors seem not to have grasped the idea now being fought out in regard to dispensing of remedies by physicians. They discuss the matter from a great variety of standpoints and sometimes are very contradictory to themselves. One of the errors they have fallen into is to regard dispensing as a method of selling drugs. That is totally wrong. It is simply the idea of preserving to the doctor his right to dispense remedies to his patients if he desires to do so. The question is whether the doctor shall continue to be allowed to carry a medicine case and have the customary supply of medicines in his office, or shall his armamentarium be reduced to a prescription pad?

Times without number the doctor must be prepared to do something for his patient when he is called in. To go entirely empty-handed and write a prescription for the patient to get his medicine when the druggist pleases to send it will leave many a patient in a bad situation. We aim to help the medical profession retain its rights to serve the people.

The regular profession seems to be the physicians aimed at by the antidispensing bills. The eclectics and homeopaths are still apparently not "hit." But they will be caught after the regular profession has been caught.

The National Association of Retail Druggists, at its recent annual meeting, decided to promote a law requiring dispensing physicians to be registered pharmacists. We must watch for these bills in all legislatures.—Editorial, *Medical World,* November, 1916.

UNIFORMITY LACKING IN STATE NARCOTIC LAWS

It was hoped that the passage of the Harrison law to regulate the sale and possession of narcotics would prove to be effective in controlling the narcotic evil. But since the United States Supreme Court has ruled that the federal government cannot control possession of the drugs, this will have to be done by state legislation. The constitutional reason is that the regulation of possession is a police power that is reserved to the states, and hence cannot be exercised by the United States government. Many states have already enacted laws to control the sale of narcotics. The others will probably do so. It is to be hoped that the state narcotic legislation will be uniform with the Harrison law in order to avoid confusion through conflicting or varying laws, and also control improper possession, as attempted by the Harrison law, but which now must be done by the states.

In order that the objects, intents and effect of these state laws may be appreciated by everybody, they should be uniform. Otherwise confusion will exist. As a step toward uniformity, we are presenting a careful comparative study of existing laws.

As soon as the Harrison law was passed by Congress, in December, 1914, we published and advocated the passage of a model state narcotic law that would control the sale of narcotics, permit dispensing by physicians, prohibit their sale without prescription, prohibit possession by the laity except when prescribed by a physician for sickness, permit the treatment of drug addicts, prohibit veterinarians from prescribing for human beings, require official order forms for wholesale orders, provide revocation of license of addict, prohibit refilling of narcotic prescriptions, etc. It was uniform with the Harrison law and would control the narcotic business thoroughly. A few states passed the law, notably Colorado. Connecticut passed a similar law which specifically exempted physicians from recording narcotics dispensed within certain limits.—Editorial, *Medical World,* November, 1916.

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ATHENS, PA., NOVEMBER, 1916

ORAL SEPSIS

Miller's epoch-making work on oral sepsis as a cause of constitutional disease, in 1889, was received with indifference by practitioners of medicine and dentistry. During the past few years there has been an awakening and the great importance of this cause of disease is now generally recognized, due in large part, to the splendid work of Rosenow, Billings, Hartzell and others. The etiologic relationship of pyorrhea, or peri-apical infection or abscess, to diseases of the tonsils, joints, heart, stomach, kidneys and nervous system, is only partly grasped by the average practitioner of medicine and dentistry, and the sick do not therefore receive that benefit, which is sometimes life saving, that follows the prompt detection and removal of oral sepsis. Evidence exists proving that chronic oral sepsis is one of the causes of chronic osteitis, arthritis or peri-arthritis, endocarditis, pericarditis or myocarditis, endarteritis, nephritis, cholecystitis, appendicitis, thyroiditis, oöphoritis, meningitis, cerebritis, myelitis, poliomyelitis, neuritis, gastric or duodenal ulcer, carbuncles, furunculosis and ocular and blood diseases.

Recognition of the site of the oral sepsis is comparatively easy in pyorrhea, and may not be difficult in certain cases of disease of the roots of the teeth; but there remains a large number of latent peri-apical infections or abscesses that escape diagnosis, or are diagnosed with difficulty.

Loose, dead or capped teeth, those containing large fillings or connected by bridges or artificial dentures, are usually septic; and when any of the diseases mentioned occur, in the absence of a known cause, these teeth should be examined with the expectation that they are septic. A similar attitude should be adopted toward pyorrhea, pyorrheal pockets so frequently found in connection with capped teeth, bridges or artificial dentures. The most frequent undetected cause of secondary sepsis in various parts of the body is peri-apical infection or abscess, and one of the reasons is that the methods of diagnosing peri-apical infection or abscess have been inefficient. Roentgenograms are absolutely necessary, and should not be restricted to suspected teeth, but include all teeth. Their interpretation is usually easy, sometimes most difficult, occasionally erroneous. The absence of roentgenological evidence of apical infection or abscess does not necessarily absent this condition. If a tooth gives no pain from faradism, percussion, heat or cold, this does not prove that the apex region of the root or roots is normal. On the other hand, if pain is produced, it is not always due to disease of the apex of the roots. In doubtful cases, which are by no means few, it is necessary that the pulp canal be explored to the apex region, and under aseptic conditions the peri-apical space should be aspirated and cultured, and if the streptococcus viridans or hemolyticus be discovered, the diagnosis is established. The dental profession must solve the problem of the best method of treating pyorrhea or pyorrheal pockets, peri-apical infection or abscesses. When serious disease of important organs exists, or life is threatened, an infected tooth or teeth should be promptly sacrificed if the safety of the patient cannot be secured by other means. Drainage of the affected area, by a sinus or otherwise, greatly lessens, but does not remove the likelihood of secondary septic manifestation in the more important organs of the body. It should be remembered that usually pyorrhea, pyorrheal pockets, peri-apical infection or abscess exists for many months or years, and causes recurring septic or toxic diseases of the various tissues of the body, and in this way may eventually produce irreparable destruction of joints, heart valves, blood vessel walls, kidneys or nervous system. Valvulitis, due to oral sepsis, which has healed, may later develop the classic clinical picture of ulcerative endocarditis, due to a recurrence of infection from the original focus.

The truth that focal sepsis, wherever situated, even though local symptoms and signs be absent, causes acute or recurring inflammation or toxemia of one or more of the important organs or tissues of the body, constitutes one of the most important advances in medicine in recent years, and makes possible the prevention of certain of these diseases. J. D.

THE PREVENTION OF INSANITY

On previous pages will be found an excellent paper by Dr. C. W. Burr on "The State Care of the Insane," and able discussions on the paper by Drs. Frazier, Copp and Lichty. The whole subject is an important one and one about which there is not likely to be too much said. Anything that can be done to better the care of the insane should receive the attention of physicians, county and state officials, legislators and philanthropists. Prevention, however, is better than cure. What can be done to lessen the increasing number of the insane in our country?

Alcohol, drugs, syphilis, pellagra, and race propagation by the unfit are responsible for more than 50 per cent. of our annual commitments. Prevention is the sole reliance for decreasing the burden of insanity. Only a limited percentage of the insane can be restored to usefulness, and of these most are liable to recurrences, with or without exciting causes. The recognized preventable causes of insanity point the way to a great reduction of human misery.

The solution of this problem can be found only in public education, efficient public health supervision and treatment of venereal diseases, legalized control of reproduction that shall prohibit mating of the manifestly unfit, and cleaner personal living. These are the basic methods of diminishing the insanity rate. Their general adoption by the public would, in another generation, produce results greater than have followed the tuberculosis campaign in the last.

Better general information must follow keener medical study and investigation. The mental hygiene movement of national scope and the local clinics and so-called psychopathic hospitals are accomplishing much, but their activities deal with only a small part of the problem. All insane individuals upon their first commitment should be received in hospitals so organized that the most modern methods may be applied. Field work, laboratory technic, medical study and diagnosis should be the keynote to all insane hospital activities. Properly designed reception wards for acute cases with intensive medical care and nursing of recoverable cases are essential. Such hospital units should be centers for neuropathologic, serologic, chemical and pathologic study and research. They should also be sources of information both to the public and the profession.

Finally, medical school instruction in mental diseases must be extended to something more than a few lectures and clinical exhibits if the general practitioner is to play an important rôle in the prevention of insanity. S.

OFFICERS AND COMMITTEES

On another page will be found a list of the officers and committees of the Medical Society of the State of Pennsylvania. If your name is in this list it will be well to learn just what are your privileges, duties and responsibilities. The bulletin of one of our county societies recently stated that our members are more ready to accept appointments on committees than they are to do the work of the committees. Doubtless it would have been more accurate to say that members are urged to accept appointments but later find it difficult fully to perform the work expected. It must be admitted, however, that some of the committees and commissions made very little if any effort during the past year.

If we, as officers and committees, are to accomplish anything of value during 1917 we must begin systematic work at once, and we must make up our minds not to be discouraged if our efforts do not meet with the hearty cooperation we have the right to expect from the members at large. We have accepted these positions and let us like men do our part and even a little more. Perhaps if we use a little more tact and perseverance we may be encouraged by the ready response received from the rank and file of the profession. S.

COOPERATION MAKES SUCCESS

No officer or committee of any society can do the most efficient work unless the members individually cooperate. Not all the blame for failure to secure desirable legislation and to prevent vicious legislation can be charged to the officials of the state society. More than one illustration of this fact might be given. The following case is mentioned not as a "come back" but simply to show the necessity for the members of our county societies to cooperate if we are to secure fair treatment for the profession. One of our county societies last year, at a special meeting of that society, censured the Committee on Public Policy and Legislation because that society thought the committee to be inefficient. How well did the members of that county society cooperate with the officials of the state society? When the Journal for February, 1915, was printed and about ready to be bound, it was found desirable to secure the immediate attention and assistance of all our members. At considerable expense a four-page colored insert containing a questionnaire was inserted between the editorial pages. Still further to attract the attention of members, postal cards were sent to several influential members of each county society asking that attention be called to the insert. The insert in the Journal and six postal cards brought two replies from the one hundred and more members of the society that censured the Committee on Public Policy and Legislation for its supposed inefficiency. We repeat: Cooperation on the part of our members at large is necessary if our officers and committees are to do efficient work. S.

CHANGES TO WORKMEN'S COMPENSATION LAW

As mentioned elsewhere, the House of Delegates left the matter of securing changes to the Workmen's Compensation Law to the Committee on Public Policy and Legislation. In this connection attention is called to the paper by Dr. Estes on a previous page, to the report of Councilor Moyer as given in the minutes of the House of Delegates, and to various articles published in the Journal for July. S.

THE COMMITTEE ON PUBLIC POLICY AND LEGISLATION

The House of Delegates at Scranton referred the following items of business to the Committee on Public Policy and Legislation with favorable recommendation: Amendments to Workmen's Compensation Act, social insurance, the chartering of medical educational institutions, appropriation for the Pennsylvania Village for Feebleminded Women in Union County, an adequate milk hygiene bill, conference with the State Lunacy Committee regarding the proper commitment of the insane, and some other matters (see minutes of the House of Delegates on succeeding pages).

The members of the committee, Drs. John B. McAlister, chairman, Frank G. Hartman, George A. Knowles, Charles A. E. Codman and C. L. Stevens, will be glad to receive suggestions regarding any matter referred to them, and they will seek information regarding what is desirable and as to what will stand a reasonable chance of becoming a law on the one hand, or of being defeated on the other hand. They desire and expect the hearty cooperation of all members and it is earnestly hoped that our members will be loyal to the committee and will promptly render any assistance that may be asked for. The House gave definite instructions to the committee regarding some of the points referred to them, and as regards the other items the committee is naturally in a better position to decide what should be done in any matter of proposed legislation than are the same number of equally capable physicians who are not working together and consulting with others on legislative matters. If, therefore, any member does not agree with the committee it is hoped that he will confer with the committee before discussing the matter with legislators or in public. Seven thousand men working together through a central committee should be able to accomplish desirable ends. One physician working alone may counteract the work of several who have united on a definite plan that appears to be the most satisfactory, all things considered. S.

NINETEEN SEVENTEEN

The state society is anxious, in the interest of the profession as a whole, that each and every component county society shall do even better work this year than ever before. It is recognized that each society has local conditions and limitations that are best appreciated by the members of the local society, and yet, to a certain extent, all the societies have to contend with many of the same problems.

Will each officer and member of each county society ask himself and ask his fellow members wherein his society can do better work than during the past year? Are there any eligible physicians in your county who are not members of your society? The American Medical Directory for 1916 contains the names of 11,502 physicians in Pennsylvania. Of this number 6,694 are members of our society, leaving 4,808 who are not members. Some of these, for one reason or another, would not be eligible to membership, and still others, for various reasons, could not be secured as members. It is fair, however, to assume that in most of the counties, perhaps in all of them, there are eligible physicians who can be secured as members if systematic and kindly efforts are made by the members.

The following paragraphs are taken from "A Message to the Members and County Societies," by the secretary of the Medical Society of the State of New York, *New York State Journal of Medicine* for October, 1916.

> We should not forget that the state and county societies are professional bodies, organized for mutual benefit and for the public good. They are not clubs or social fraternities designed for the entertainment of their members. In a club, the clubability or the social qualities of the applicant may be properly considered. That is not true of the applicant for membership in the county society. Every physician licensed by the state to practice medicine is eligible for membership, provided only that he does honest and reputable practice and is a respectable and lawabiding citizen. Personal dislikes should not be permitted to interfere with his admission.
>
> I wish to enter a plea for the young physician. He should be brought into the county society as early as possible. Conditions have materially changed in the last quarter century. In the earlier days the young physician studied medicine in the office of a practitioner. He became imbued with professional ideals and ethics and was inspired with a regard for the profession which oftentimes kept him in the straight and narrow professional path. Today the young physician goes direct from the high school or college into the medical school and from there to the hospital. He is brought but little into personal contact with older physicians and knows little of the obligations and duties of private practice, and sometimes seems lacking in ethical standards. This is one point in which modern methods of education are inferior to the older methods.
>
> It is the more important, therefore, for the societies to bring these young men into affiliation, and for the elder physicians to take them under their care. It has become an added duty of the societies. The young doctor of today has much to learn that the young doctor of fifty years ago knew at the outset of his professional life. Many of his errors and lapses from ethical ways are due to lack of knowledge, pure and simple. I would, therefore, particularly urge the societies to gather into the fold every young practitioner, if he be a graduate of a reputable college and appears to be a young man of honor and good intention.

The earlier the young physicians are secured as members the better for themselves, for the profession and for the public. Hospital interns who are licensed should be secured as members and then transferred if they change their location. Hospital interns who are serving their "fifth year" should be urged to attend the meetings of the county societies. The vigorous life and new teachings of the younger men will be as helpful to the older members as the mingling with the mature practitioners will be helpful to the recent graduates.

The increase of membership is only a part of the "better work" that should be done by county societies. The meetings should be interesting and free from unnecessary business details and "splitting of hairs." Public meetings with judicious programs and speakers should be held in every county and when the programs of the ordinary meetings are appropriate it may be well to invite prominent lawyers, ministers, teachers and officials to attend and take part in the discussions.

While each member should take an interest in his county society, very much of the success or failure of the society will depend on the president and the secretary. For this reason only the best men should be nominated and elected for president, secretary and other officers. Any officer should be able to do better work during his second term than during his first, but no man should be reelected to any office in a county society if there is someone else who can and will do better work. Personalities should have no more place in the selection of officers than they should have in the election of members. S.

"BUSINESS TALK TO DOCTORS"

The work of the true physician should be largely altruistic, but the great majority of us must secure the wherewithal to support ourselves and our families while we are doing altruistic work and after our working days are past. Dr. C. F. Taylor, editor of the *Medical World,* while never neglecting the altruistic side of the practice of medicine always has some good things to say about the business side of a doctor's life. We take the liberty of reproducing, on our advertising pages in the last form, some of his editorials from this month's *World.* It is hoped that all our readers will study these practical words and act accordingly. He has well said: "Fees can be reduced any time without opposition, but the time seldom comes when they can be increased." S.

SURGICAL SECTION, PITTSBURGH SESSION

The officers of the Surgical Section invite volunteer papers for the Pittsburgh session, September 25-27, 1917. Kindly send title of paper to the secretary of the section, Dr. Donald Guthrie, Sayre, Pa.

CHANGES IN MEMBERSHIP OF COUNTY SOCIETIES

The following changes have been reported since the September Journal was printed, up to October 28:

Allegheny County: *New Members.*—Albert Adam Bornscheuer, Dormont; Frank O. Bumgarner, Paul C. Bruce, William J. Crookston, Carl J. Cubbison, James L. Gilmore, Joseph B. Gold, Albert J. Guerinot, Harry R. Goldstein, William B. Hetzel, Homer E. Halferty, Myrtle M. Jack, Herbert M. Long, William G. McKinney (by transfer from Cambria County), S. Herman Rinehardt, Stanley H. Rinehardt, Morris A. Slocum, Paul R. Sieber, Joseph F. Thoms, Lawrence Wechsler, Pittsburgh; Robert O. Blacklock, McKeesport (by transfer from Jefferson County); Ira C. Duncan, East McKeesport; J. M. Holtz, Etna; Harry S. Lake, Willock; Samuel G. McCune, Buena Vista; William P. Nolan, Warren T. O'Hara, New Kensington (Westmoreland County); Charles I. Robinson, Sharpsburg; John G. Wakefield, Wilkinsburg; Austin L. Cort, Wilson; James M. Knowlton, Premont, Tex. *Death.*—William E. Hallock (Univ. of Pennsylvania, '78), died suddenly on a Pennsylvania train in the Pittsburgh station, Dec. 4, 1915. *No Longer Members.*—Luigi C. Paolino, Francisco Sunseri. *Removal.*—Clarence S. Allison from Warrendale to 3716 Evergreen Avenue, N.S., Pittsburgh.

Armstrong County: *Removal.*—Joseph M. Steim from Kittanning to First National Bank Building, New Kensington (Westmoreland County).

Beaver County: *Removal.* — Arthur B. Gruver from Beaver to 413 Elder Drive, Toledo, Ohio.

Bedford County: *New Member.* — Clarence S. Brumbaugh, Windber (Somerset County).

Berks County: *Death.*—James Y. Shearer (Jefferson Med. Coll., '62), in Sinking Spring, September 25, from arteriosclerosis, aged 80.

Blair County: *Death.* — Thomas A. C. Kephart (Univ. of Pittsburgh, '97) of Altoona was run down and killed by a passenger train near Cresson, September 18, aged 48. *Removal.*—S. Calvin Smith from Hollidaysburg to 264 South Sixteenth Street, Philadelphia.

Bucks County: *Removal.*—George S. Deibert from Spinnerstown to Allentown, R. D. 3 (Lehigh County).

Cambria County: *Transfer.*—William G. McKinney to Allegheny County Society. *Removal.*—Ray Parker from Nanty Glo to State Hospital, Norristown (Montgomery County).

Center County: *New Member.*—Marvin W. Reed, Bellefonte (by transfer from Luzerne County). *Transfer.*—Samuel G. Coons to Medical Society of Franklin County.

Chester County: *New Member.*—Jesse Patrick, West Chester.

Clearfield County: *Removal.*—Louis W. Wright from Mahaffey to 3 West Market Square, Williamsport (Lycoming County).

Columbia County: *Removal.*—William T. Vance from Orangeville to Bloomsburg, R. D. 6.

Cumberland County: *New Member.*—J. Bruce McCreary, Shippensburg.

Dauphin County: *New Members.*—Gilbert L. Dailey, Lester W. Frasier, Harvey A. Stine, Harrisburg; William Carl Dailey, Steelton; Ira A. Keiter, Wiconisco; J. Landis Zimmerman, Hershey. *Removal.*—Walter E. Kiefer from Harrisburg to 1221 Seneca Street, Buffalo, N. Y.

Delaware County: *New Member.* — Adam J. Simpson, Chester.

Erie County: *New Member.*—N. Troy Gillette, Corry. *Removals.*—Ira J. Dunn from Erie to Harbor Creek; Charles C. Waggoner from Corry to 2400 Hoover Street, Los Angeles.

Fayette County: *New Members.*—Harry Brady, Masontown; John F. Detweiler, Uniontown.

Franklin County: *New Members.*—Samuel G. Coons, Dry Run (by transfer from Center County); Charles A. Hartzell, Fayetteville.

Greene County: *New Member.* — Edmund W. Laidley, Carmichaels.

Indiana County: *Removals.*—John A. Elkin from Creekside to Smicksburg; William Johns from Brush Valley to 1311 Center Street, Wilkinsburg (Allegheny County); William H. Nix from Heilwood to 529 Water Street, Indiana.

Jefferson County: *New Member.* — Harry A. O'Neal, Knoxdale. *Transfer.*—Robert O. Blacklock to Allegheny County Society.

Lackawanna County: *New Members.*—William F. Bennett, Scranton; Adelaide Francis, Dalton; Almon C. Hazlett, Dunmore; Robert Mackey, Waverly. *Death.*—Frank W. Winters (Jefferson Med. Coll., '94) in Dunmore recently. *Removal.*—Peter F. Carlucci from Scranton to 381 Rivard Street, Detroit, Mich.

Lancaster County: *Removal.*—Claude D. Roop from Lancaster to State Hospital, Norristown (Montgomery County).

Lawrence County: *New Member.*—Patrick J. Brice, New Castle. *Death.*—Floyd Lee Van Wert (Univ. of Pennsylvania, '10) of New Castle, was killed September 18, when his automobile was struck by a passenger train, aged 32.

Luzerne County: *New Members.*—G. E. Baker, Forty Fort; Barnett H. Cooper, Glen Lyon; C. L. Griswold, Espy. *Transfer.*—Marvin W. Reed to Center County Society.

Montgomery County: *New Member.*—Henry F. Slifer, North Wales. *Death.*—Harry H. Whitcomb (Univ. of Pennsylvania, '80) of Norristown, at Atlantic City, September 28, from myocarditis, aged 61.

Northampton County: *New Members.*—Elmer E. Bush, Danielsville; Byron C. Jones, Alexander J. Maysels, South Bethlehem; Thomas B. Kern, Loyal A. Shoudy, Bethlehem. *Death.*—John H. Wilson (Univ. of Pennsylvania, '60) in Bethlehem, September 13, aged 80.

Northumberland County: *Removal.*—Agnes S. Knights from Shamokin to Selins Grove (Snyder County).

Philadelphia County: *New Member.*—George C. Shammo, Philadelphia. *Deaths.*—Edward L. Duer (Univ. of Pennsylvania, '60) of Odessa, Del., recently, aged 80; D. Braden Kyle (Jefferson Med. Coll., '91) in Philadelphia October 22, aged 53; Alexander A. Uhle (Univ. of Pennsylvania, '98) in Philadelphia, October 23, aged 42; Matthew Woods (Univ. of Pennsylvania, '73) in Philadelphia, October 20, following an operation in which his left leg was amputated because of gangrene, aged 63. *Removals.*—Eugene A. Case from Lansdowne (Delaware County) to Wake Forest, N. C.; Claude A. Dundore from Denver to Ritz Carlton Hotel, Philadelphia; Samuel H. Gilliland from Marietta (Lancaster County) to Widener Building, Philadelphia; Adolph A. Gurin from Atlantic City, N. J., to 530 Pine Street, Philadelphia; Robert Kilduffe from Philadelphia to 425 East Broad Street, Chester (Delaware County); Karl Schaffle from New Cumberland (Cumberland County) to Camp Hill (Cumberland County).

Potter County: *Removal.*—A. C. Shannon from Austin to Titusville (Crawford County).

Schuylkill County: *New Members.*—Gilbert F. Bretz, Pottsville; Leo T. Mullahey, John R. Stein, Shenandoah.

Venango County: *New Members.*—James D. Blair, Franklin; Clarence E. Imbrie, Cochranton (Crawford County).

Westmoreland County: *Removal.*—Joseph M. Reed from Derry to 1010 Massachusetts Avenue, Cambridge, Mass.

York County: *New Members.*—Clayton E. Bortner, Hanover; Robert L. Ellis, Louise Harding, York.

S.

PAYMENT OF PER CAPITA ASSESSMENT

The *per capita* assessment for the term Sept. 1, 1914, to Jan. 1, 1916, has been received from component county societies since the August report, as acknowledged on page 857 of the August Journal, and included in the secretary's report published on page 935 of the September Journal, as follows:

Sept. 16,	Allegheny	1033	6557	$2.75

The *per capita* assessment for the year 1916 has been received from component county societies since September 1, as acknowledged on page 927 of the September Journal, and included in the secretary's report published on page 935 of the September Journal, as follows:

Sept. 7,	Philadelphia	1708	6622	$ 2.75
Sept. 13,	Schuylkill	90–92	6623–6625	8.25
Sept. 15,	Lackawanna	203–206	6626–6629	11.00
Sept. 16,	Chester	84	6630	2.75
	Delaware	80	6631	2.75
	Allegheny		6632–6662	85.25
Sept. 23,	Venango	59–60	6663–6664	5.50
Sept. 28,	York	109–111	6665–6667	8.25
Sept. 29,	Northampton	119–123	6668–6672	13.75
Oct. 2,	Cumberland	38	6673	2.75
	Franklin	52	6674	2.75
Oct. 3,	Fayette	119–120	6675–6676	5.50
Oct. 6,	Bedford	23	6677	2.75
Oct. 7,	Jefferson	63	6678	2.75
	Luzerne	181–183	6679–6681	8.25
Oct. 9,	Montgomery	128	6682	2.75
	Lawrence	59	6683	2.75
Oct. 19,	Greene	19	6684	2.75
Oct. 24,	Dauphin	80, 144–148	6685–6690	16.50
Oct. 30,	Erie	118	6691	2.75
Oct. 31,	Luzerne	184, 185, 187	6692–6694	8.25

The *per capita* assessment for the year 1917 has been received from component county societies as follows:

March 28,	Dauphin	1	1	$2.75
April 12,	Bradford	1	2	2.75
Oct. 6,	Bedford	1–2	3–4	5.50
Oct. 23,	Wyoming	1–3	5–7	8.25

STATE NEWS ITEMS

BORN

To Dr. and Mrs. William Frederick Moore, Llanerch, a son.

MARRIED

Dr. Jacob T. Bowman and Mrs. Bertha Balme, both of Somerset, October 3.

Dr. John Hall Lilly and Miss Mae Connor, both of Philadelphia, September 14.

Dr. Irving Cleveland Miller, Berlin, and Miss Violet K. Clark, Meyersdale, July 12.

Dr. Frederick L. Nisbet and Miss Harriet Stem, both of Meadville, at Pittsburgh, September 9.

Dr. Sidney L. Olsho and Miss Katinka M. Dannenberg, both of Philadelphia, September 11.

Dr. Truman G. Schnabel and Miss Hildegarde Julia Rohner, both of Philadelphia, October 21.

Dr. Washington Merscher and Miss Theda S. Dengler, both of Germantown, in Lebanon, September 2.

DIED

Dr. John Savile Lees (Univ. of Pennsylvania, '63) in Bridgeport, October 9, aged 74.

Dr. Samuel C. Allison (Jefferson Med. Coll., '67) in Punxsutawney, August 25, aged 86.

Dr. Edward R. Fell (Univ. of Pennsylvania, '61) in Philadelphia, September 15, aged 77.

Dr. John P. Gilligan (Medico-Chirurgical Coll., '99) in Wilkes-Barre, August 11, aged 44.

Dr. Thomas B. O'Reilly (Medico-Chirurgical Coll., '93) in Philadelphia, September 18, aged 47.

Dr. George Price (Univ. of Pennsylvania, '78) of Altoona, in Pittsburgh, September 24, aged 68.

Dr. William Stiles, Jr. (Hahnemann Med. Coll., Philadelphia, '75), in Philadelphia, October 7, aged 74.

Dr. Carl E. Peck (Jefferson Med. Coll., '14) in Philadelphia, September 5, from infantile paralysis, aged 25.

Dr. John D. Mercur (Jefferson Med. Coll., '78) in Towanda, September 19, from acute indigestion, aged 63.

Dr. William C. Peters (Hahnemann Med. Coll., Philadelphia, '81) in Harrisburg, September 19, aged 57.

Dr. Nevin Heckart Wireback (Memphis Hosp. Med. Coll., '06) in Pittsburgh, August 20, from nephritis.

Dr. William D. Moore (Univ. of Pennsylvania, '93) in Philadelphia, September 27, from heart disease, aged 49.

Dr. Alexander Williams Biddle (Jefferson Med. Coll., '79) of Philadelphia, at Isleboro, Me., September 19, aged 65.

Dr. John A. Fritchey (Univ. of Pennsylvania, '79) of Harrisburg, in Philadelphia, August 25, from disease of the liver, aged 58.

Dr. Robert M. Hill (license, years of practice, Fayette County, Pa., '81) of Farmington, in Dawson, September 21, from cerebral hemorrhage, aged 74.

Dr. Thomas J. Morton (Jefferson Med. Coll., '85) in Philadelphia, October 12, from pulmonary hemorrhage following an attack of bronchitis, aged 54.

Dr. Wayne E. J. Bomberger (Hahnemann Med. Coll., Philadelphia, '04) in Harrisburg, October 6, from typhoid fever, complicated by an attack of appendicitis, aged 35.

ITEMS

Dr. Burton Chance has been chosen as an attending surgeon at Wills Eye Hospital.

Dr. Theodore LeBoutillier has been appointed pediatrist to the Philadelphia General Hospital.

Dr. George J. Van Vechten has been appointed director of the Department of Health of Scranton.

Dr. Edward S. Dickey, Pittsburgh, has returned after several months service in the Russian army.

Dr. William W. Trinkle succeeds the late Dr. Thomas J. Morton as a coroner's physician for Philadelphia.

Dr. J. Torrance Rugh has been chosen visiting orthopedic surgeon to the West Philadelphia Hospital for Women.

Dr. Ross V. Patterson has assumed his duties as dean of Jefferson Medical College, succeeding Dr. James W. Holland.

Misericordia Hospital, Fifty-Fourth Street and Cedar Avenue, Philadelphia, laid the cornerstone on September 24, for a building estimated to cost $1,500,000.

Dr. Leon Brinkman has been appointed visiting surgeon to the Jewish Hospital, Philadelphia, and Dr. Melvin M. Franklin has been made consulting surgeon.

Dr. J. Chalmers DaCosta has been appointed chief consulting surgeon of the Philadelphia General Hospital to fill the vacancy caused by the death of Dr. J. William White.

Dr. Chevalier Jackson, Pittsburgh, has been appointed professor of bronchoscopy and esophagoscopy and direct laryngoscopy at the New York Postgraduate Medical School and Hospital.

The Philadelphia Hospital will rebuild on the present site at Thirty-Fourth and Spruce Streets. Plans have been drawn for one large building. One million dollars are now available.

Dr. Claude D. Roop, has resigned as superintendent of the Lancaster County Hospital and Insane Asylum, to accept the position of assistant physician at the Norristown Insane Hospital.

Dr. W. Wayne Babcock gave a talk on his trip to Alaska, Yukon, and British Columbia before the Philadelphia Physicians' Motor Club, October 24. This was illustrated with stereopticon views.

The Woman's Medical College of Pennsylvania opened September 20. Dr. Albert P. Brubaker, professor of physiology and medical jurisprudence, Jefferson Medical College, delivered the opening address.

The Pennsylvania School for Social Service was opened on September 25, with over thirty students. Mr. Bernard J. Newman, formerly general secretary of the Philadelphia Housing Commission, is the new director.

A New Directory of Philadelphia Hospitals and Dispensaries has been issued. Copies may be obtained at 15 cents each from the Social Service Department of the Episcopal Hospital, Lehigh Avenue and Front Street.

Dr. Walter H. Brown, a member of the Bucks County Medical Society, has resigned as epidemiologist of the Massachusetts State Department of Health to take up work as executive officer of Bridgeport, Conn., Board of Health.

The Association of Trustees and Medical Superintendents of the State and Incorporated Hospitals for the Insane and Feebleminded of Pennsylvania held its twenty-eighth semiannual meeting in Philadelphia, October 23, and Norristown, October 24.

Masonic Hospital at Elizabethtown.—The Free Masons of Philadelphia have presented Elizabethtown a hospital costing $60,000 and modern in all its appointments. Two other buildings to be connected with the hospital by corridors will be given later.

Dr. R. Tait McKenzie, physical director of the University of Pennsylvania, who has been in England for the past year serving as a major in the Medical Corps of the British army, has arrived in Philadelphia to resume his usual duties at the university.

Rush Society Lecture.—John Scott Haldane, M.D., LL.D., F.R.S., Fellow of New College, Oxford, gave the first lecture in the Rush Society series for the present year in Thomson Hall, College of Physicians, October 19. The subject was the "New Physiology."

Dr. William Sharpe, professor of neurologic surgery in the New York Polyclinic Medical School, delivered an address on "Recent Advances in Brain

Surgery," illustrated by moving pictures, before the College of Physicians of Pittsburgh, at a dinner at the University Club, Oct. 27, 1916.

Drs. I. D. Metzger, Pittsburgh, and C. L. Johnstonbaugh, Bethlehem, were, on October 20, reappointed members of the Bureau of Medical Education and Licensure. Drs. H. W. Arthur and T. A. Hogan, Pittsburgh, were appointed members of the Board of Dental Examiners.

The Medical Club of Philadelphia held a reception October 20, at the Bellevue-Stratford Hotel, in honor of the following past presidents of the club: Drs. Hobart A. Hare, James M. Anders, Edward E. Montgomery, L. Webster Fox, S. Lewis Ziegler, James C. Wilson, Samuel D. Risley, and McCluney Radcliffe.

The Railway Surgeons' Association of the Pennsylvania lines east of Pittsburgh held its ninth annual convention in Philadelphia, October 19 to 21. The following officers were elected: president, Dr. W. B. Henderson, Philipsburg; vice president, Dr. Charles J. Roberts, Berwyn; secretary, Dr. Amos W. Colcord, Clairton, and treasurer, Dr. Joseph C. Egbert, Wayne.

Accidents in Pennsylvania. Figures for the first eight months of the year show a total of 166,084 accidents with 1,582 deaths. There have been 49,552 compensation cases. On August 1 more than $450,000 had been paid for disability and more than $1,300,000 to be paid out weekly in a term of years for the fatality cases.

Funds to Send Doctors to Germany.—A festival, to complete a fund of $16,000, most of which has already been raised to send six Philadelphia doctors to Germany, was held at the Philadelphia Turngemeinde, October 23. The physicians are expected to sail within a few weeks. Instead of taking up posts at various war fronts, they will be sent to cities where there is a shortage of medical men. They will remain six months.

Officers Nominated.—At the regular quarterly business meeting of the Medical Club of Philadelphia, held at the Bellevue-Stratford, October 20, the following officers were nominated: president, Dr. Charles K. Mills and Dr. William D. Robinson; first vice presidents, Drs. G. Oram Ring and William Martin of Atlantic City, N. J.; secretary, Dr. William S. Wray; treasurer, Dr. Lewis Adler, Jr., and governors, Drs. Paul J. Sartain and McCluney Radcliffe.

University of Pennsylvania Faculty.—The following former members of the Medico-Chirurgical College Faculty have been duly elected members of the Faculty of Undergraduate Medicine in the University of Pennsylvania: Joseph McFarland, M.D., professor of pathology; John C. Heisler, M.D., professor of anatomy; George H. Meeker, Sc.D., LL.D., professor of chemistry; Horatio C. Wood, Jr., M.D., professor of pharmacology and therapeutics; Seneca Egbert, A.M., M.D., professor of hygiene.

State Collects for Care of Insane. — Since the state began to collect funds from the families and estates of alleged indigent insane for their maintenance in state asylums, under the act of June 1, 1915, the sum of $133,152.56 has been turned into the general fund of the state treasury. There are 25,000 lunatics in Pennsylvania and while thousands are without funds and come from families financially unable to pay their maintenance, the work of collecting from those whose finances will stand it will not be completed for many months.

Medico-Chirurgical College Transfers Realty.—One of the final transactions of the merger of the Medical School of the University of Pennsylvania, the Medico-Chirurgical College, and Jefferson Medical College was consummated, September 21, when the real estate holdings of the Medico-Chirurgical College were transferred to the trustees of the university. The college buildings, assessed at $375,550, and two four-story houses, assessed at a total of $54,000, were conveyed for a nominal consideration. These will eventually be conveyed to the city by the university and the buildings demolished, as they are in the line of the new parkway.

State Genito-Urinary Clinic.—The State Department of Health has announced the establishment of a state genito-urinary dispensary at 1630 Poplar Street. This will be conducted for the benefit of the poor and needy afflicted with genito-urinary diseases. The idea of its establishment by the state health department is to relieve the physician of the care of the many deserving but impecunious poor suffering with genito-urinary infections; to provide the prompt attention and proper treatment for such conditions where it might be otherwise necessarily neglected, and thereby, in the rapid elimination of the danger of contagion, to employ the most effective method for the reduction of venereal disease throughout the state. Dr. John L. Laird will be in charge of the dispensary.

Clean Milk Campaign in Sunbury.—The Northumberland County Medical Society has undertaken a thorough campaign of education for the obtaining of clean milk. On request at the August meeting of the society a committee consisting of Drs. C. H. Weimer and H. T. Simmonds of Shamokin and G. G. Gill of Sunbury was named. Sunbury's campaign opened the week of October 1 with Sunday evening addresses by physicians in the principal churches of the town on the subject of sanitary milk products, daily newspaper articles, and illustrated evening lectures thrice weekly in a large tabernacle in the central part of the town. Great interest in the movement has already been aroused and the obtaining of one or more dairies for producing certified milk in the county is assured. Compulsory registration of all milk dealers and their sources of supply with a grading of 70 per cent. required, and a certificate of health for every person employed in handling milk are among the regulations demanded by the committee. Suggestions for incorporation in borough ordinances are as follows: (1) Registration of all milk and ice cream dealers with the secretary of the borough board of health; such registration including the filing with that official of, (a) a U. S. Department of Agriculture score card on which each farm supplying milk or cream to the borough is given a rating of 70 per cent. or over by a competent physician or veterinarian, and (b) of a physician's certificate showing freedom from communicable disease on the part of all persons engaged in handling such milk before delivery to consumer. Registration to be renewed at the end of three months and fees for same to be arranged on a scale to cover monthly examinations of milk for traces of preservatives added in violation of state law. (2) Limitation to a reasonable period of the age of milk to be offered for sale or to be pasteurized for sale. (3) Forbidding re-pasteurization of milk for sale in the borough.

GENERAL NEWS ITEMS

Admits Women.—The Edinburgh University Court on August 28 decided to admit women students to its medical classes.

The American Academy of Medicine will hold a business meeting at the University Club, Pittsburgh, at 4 p. m., November 22.

Dr. William H. Davis, Boston, has been appointed chief statistician, division of vital statistics, United States Bureau of the Census.

The Delaware State Medical Society held its annual meeting at Milford, October 10. Dr. James Beebe, Lewes, was elected president.

Johns Hopkins Hospital has received from Dr. Howard Kelly and Mr. Blanchard Randall a collection of portraits of medical men, valued at $100,000.

Tuberculosis Week will be observed from December 3 to 10, according to request of the National Association for the Study and Prevention of Tuberculosis.

Dr. Ardrey W. Downs, formerly professor of physiology at the Medico-Chirurgical College, has been appointed professor of physiology at McGill University, Montreal.

The Vermont State Medical Society held its 103d annual meeting at St. Johnsbury, October 12 and 13. Dr. C. H. Beecher, Burlington, was elected president and Dr. William C. Ricker, St. Johnsbury, secretary.

Memorial to Dr. Murphy.—Plans are under way to raise a half million dollar memorial fund for the late Dr. John B. Murphy of Chicago. It is probable that it will take the form of a surgical research institution.

The New York Academy of Medicine has been bequeathed an estate valued at $119,179 from the late Dr. Rudolph Witthaus, specialist in medical chemistry and toxicology. The Academy also receives the doctor's library.

Writing Materials for Our Troops.—The American Red Cross has shipped to the Mexican border, for free distribution among the American soldiers, 80,000 sheets of writing paper, a like number of envelopes and 50,000 postal cards.

Pediatrists to Meet in Boston. On Saturday, November 4, the Philadelphia Pediatric Society and the Section in Pediatrics of the New York Academy of Medicine were the guests of the New England Pediatric Society in Boston.

The West Virginia State Medical Association, at its annual meeting, elected Dr. James R. Bloss, Huntington, editor of the state journal for 1917 at a salary of $1,000. Dr. J. Howard Anderson, Marytown, was reelected secretary.

The American Hospital Association held its eighteenth annual conference at Bellevue-Stratford Hotel, Philadelphia, September 26-29. Dr. Robert J. Wilson, superintendent of hospitals, New York Health Department, was elected president and Dr. William H. Walsh, Philadelphia, secretary. The association meets in Cleveland next year.

Workmen's Compensation Bill Becomes Law.—The bill providing compensation for employees of the federal government disabled in the line of duty, and providing medical, surgical, and hospital services and supplies for all such employees injured in the line of duty, whether disabled or not, has been signed by the president and is now a law.

Dr. L. Duncan Bulkley, assisted by the attending staff, gave the eighteenth series of Clinical Lectures on Diseases of the Skin, in the Out-Patient Hall of the New York Skin and Cancer Hospital on Wednesday afternoon, Nov. 1, 1916, at 4:15 o'clock. The lectures are free to the medical profession on the presentation of their professional cards.

Missionary Hospital Work in India.—A qualified medical man is required who is in sympathy with religious work. Passage paid and small monthly allowance made. Three years agreement. Apply, sending copies of testimonials. Commander Eva Booth, Field Department, Salvation Army Headquarters, 122 West Fourteenth Street, New York City.

The American Pharmaceutical Association held its annual convention in Atlantic City, September 5-8. Dr. Frederick A. Wulling, University of Minnesota, was elected president, and William B. Day, Chicago, general secretary. The 1917 meeting will be held at Indianapolis. Dr. Solomon Solis-Cohen, Philadelphia, delivered an address on "The Physician and the Pharmacopeia."

The Civil Service Commission of New York State will hold examinations for state, county and village service, on Dec. 2, 1916. Various positions for physicians, women physicians, nurses and matrons are to be filled. Must be residents of New York State for at least three months just prior to examination. For application blanks apply to State Civil Service Commission, Albany, N. Y.

Pupils as Health Officers.—Health Commissioner Robertson has suggested to the president of the Chicago school board that a student be elected by and for each of the public schools, to act as a health commissioner and to cooperate with the principals, teachers and the department of health in maintaining a neat, orderly and sanitary condition about the school and to supervise the distribution of health literature.

The State Medical Society of Wisconsin, at its annual meeting last month, placed itself on record as favoring the principle of compulsory health insurance, and urged the creation by Congress of a federal department of health with a member of the President's cabinet as secretary of the department. "The House established a precedent in electing the secretary of the state society a delegate to the meeting of the American Medical Association and favored the election yearly of the state secretary as a delegate from the state society."

The Indiana State Medical Association, at its annual meeting in September, decided to adopt the Ohio plan of having an executive secretary or business manager whose whole time shall be spent in looking after the affairs of the association. To meet this extra expense and the increased cost of the journal the state dues were raised to $4. *The Journal* of that association for October says: "The association has decided to raise the dues to $4 per year, though it is a great pity that the dues were not made $5 right in the beginning, for that amount is not more than will be found necessary in the near future to carry out the program planned. Furthermore, it is perfectly ridiculous for any doctor to object to the payment of $5 per year for the numerous benefits which such an expenditure brings to him. The average doctor's cigar bill is more than that for one month."

"PATENT MEDICINE" ADVERTISING IMPROVES.—A special committee of the Retail Merchants' Association on "patent medicines" and their advertisement has recently reported that the newspapers of Washington have as a whole made more progress in purging their columns of objectionable advertisements of quack medicines than an equal number of newspapers in any other city of the same size in the United States. That there is still room for improvement is shown by the committee's appeal to all daily papers to refuse to print false medical advertisements. Dr. Lyman F. Kebler of the department of agriculture was on the committee to represent the interests of the public in the matter, and acted as chairman. The association unanimously adopted the report.

RED CROSS NURSES SENT TO MEXICAN BORDER.—To reinforce the Army Nurse Corps on the Mexican border the war department has obtained from the American Red Cross 125 graduate Red Cross enrolled nurses for assignment to camp and base hospitals distributed along the frontier from Nogales, Ariz., to Brownsville, Texas. Fifteen of these 125 are representatives of civil hospitals in which American Red Cross base hospital units have been organized. The nurses were selected by Miss Jane A. Delano, chairman of the National Committee on Red Cross Nursing Service, whose department has over 7,000 enrolled graduate nurses, While Colonel Kean has organized twenty-five base hospitals, only eight of these will be represented in this detail of 125 nurses.

CHILD LABOR BILL NO FAKE.—The National Child Labor Committee has issued a protest against current statements to the effect that the recently passed federal child labor law is a fraud and a joker. "We hope no one will be misled by these rumors," says Owen R. Lovejoy, general secretary of the committee. "The law is as airtight as a law can be. The thirty-day clause which has been attacked as a 'joker' does not relate to shipment in interstate commerce but to removal from the factory, and was intended, chiefly, to prevent evasion of the law by the storage of child made goods in a warehouse. The federal child labor law was framed by the best constitutional lawyers in the country; it was passed by a Congress that had given it close attention; and we of the National Child Labor Committee believe that, whether the next president be Mr. Wilson or Mr. Hughes, the child labor law can and will be enforced in accordance with the will of the American people."

THE CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA (American College of Surgeons) held its seventh annual session in Philadelphia, October 23-30, the Bellevue-Stratford Hotel being headquarters, and clinics being held in the fifty-five hospitals of the city. The retiring president was Dr. Charles H. Mayo of Rochester, Minn., and the president, Dr. Fred Bates Lund of Boston. The following officers were elected: president-elect, Dr. George W. Crile, Cleveland; first vice president, Dr. Robert G. Le Conte, Philadelphia; second vice president, Dr. Rudolph Matas, New Orleans; general secretary, Dr. Franklin H. Martin, Chicago; treasurer, Dr. Albert J. Ochsner, Chicago. Dr. Ernest Sidney Lewis of New Orleans was elected an honorary fellow, and more than 200 others were chosen to the fellowship, including the following ten from Pennsylvania: Drs. Joseph V. F. Clay, W. Nelson Hammond, John F. X. Jones and Charles Francis Nassau, Philadelphia; William B. McKenna and John Davidson Milligan, Pittsburgh; George R. S. Corson, Pottsville; Charles Edward McGirk, Philipsburg, and John Walter Park of Harrisburg.

BULLETIN EXCERPTS

Bulletin, Allegheny

WHY THE NEWSPAPERS ARE OSTENSIBLY UNFRIENDLY TO THE MEDICAL PROFESSION.—The above problem the writer has often thought of in the past few years and even now feels that he can answer it only in part. The condition is not local, certainly national, and perhaps international. This seeming unfriendliness is not only manifest in the papers of Allegheny County but under observation we find that the same conditions prevail elsewhere, i. e., the doctor or medical body as a whole is held up to ridicule at every opportunity. We feel after careful analysis some of the reasons are as follows: (*a*) The public looks on the medical fraternity as made up in large part of a body of honorable men, doing a humane and necessary work in the alleviation of suffering and the prevention of disease. Now if one of their number, or the body as a whole, does anything or fails to do something, not in keeping with the public's ideal, the newspaper man who knows news when he sees it readily grasps the opportunity. It is the unusual that makes good "write-up," not the usual, as that is what is expected of us. We feel therefore that the newspapers have no quarrel with us but rather that the false light in which we are often put is based on the public's demand for the unusual—the unusual attracts the newspaper reading public's eye and the newspaper man in his mad rush for news is but answering the public demand. However, should we be held up to ridicule and misrepresented simply because it makes good reading matter; because the public eye is attracted thereby? We think not! We feel that this is unnecessary. The rich or influential are rarely libeled. The reason for this is very evident. (*b*) Another factor contributing to this ostensible unfriendliness is the fact that the editor or reporter is writing on a subject of which he knows little, and without malicious intent, works harm to the physicians, their organization or their methods of dealing with the public. Our work is technical and it can hardly be expected that the average newspaper man will have sufficient special or technical training and information to do justice to a medical subject. Doctor, could you report correctly an abstract of a meeting of mechanical engineers at which the subject of the stress and strain of bridge material was being discussed? (*c*) Sometimes articles are printed out of spite on account of some former unpleasant occurrence between the individual physician and some newspaper writer, or because one or more newspapers have some real or fancied grievance against a physician or the medical society as a whole. (*d*) Did you ever notice headlines such as this:

"Dr. Blank, a Prominent Physician of Blanktown, Horsewhips His Wife," and then go to the trouble of looking Dr. Blank up in one of the directories? You will probably find that Dr. Blank peddles a liniment or is an orderly in some hospital. It makes better reading matter if "Dr." is prefixed. The news hunter wants good copy. Better organization and therefore greater influence and a general fund in the national organization to protect our good name, and to supply the public through the lay journals with news of the true progress, in a general way, of medicine, surgery and hygiene, will go a long way toward correcting this injustice. The newspapers may then see more clearly that only such items as conform to the absolute truth and do no one, or no body of men, harm are really good news.—I. L. O.

Medical Monthly, Bucks

The Committee on Public Policy and Legislation.—How well the members of the Fayette County Medical Society think the Committee of the State Society on Public Policy and Legislation (consisting of Drs. Krusen, Hartman, Koenig, McAlister and Stevens) guarded the interests of the medical profession when the Compensation bill was being created into an act may be judged by the following preambles and resolution which were adopted at their meeting on Sept. 7, 1916, and published in the October issue of the *Mirror,* the official organ of that county.

"Dr. Rasely, after some introductory remarks bearing on the subject, introduced the following resolution:

"Whereas, A condition obtains in the profession of medicine that is inimical to the financial interest of the profession, and

"Whereas, Harry A. Mackey, in an address Feb. 24, 1916, said among other things 'that it might be well for them (the medical profession) to remember that probably they did not take the same care of their interest that the employer of labor did at the time when their advice would have been most welcome and instructive, and

"Whereas, The protection the medical profession have from inimical legislation is vested in a legislative committee of Pennsylvania state medical society; therefore be it

"*Resolved,* By the Fayette County Medical Society that we hereby severely censure the Legislative Committee of the state society for not having looked after our interests in such manner as to safeguard our right, having in mind the fact that members are not insensible to the honor of appointment but shirk the performance of the duties of their office.

"It was regularly moved and seconded that the resolution be adopted, that it be printed in the *Mirror,* and that we request that it be published in the state journal. The motion carried."

Bulletin, Crawford

Committees.—The Standard Dictionary says: "A committee is a person or persons appointed by a large number or by any organized body to give special attention to some matter, or to perform some service." In Roberts' Rules of Order we find a committee defined as "a miniature assembly that must meet together in order to transact business." Can we have committees this year that will illustrate the truth of the definition?

BOOK REVIEWS

OBSTETRICS, NORMAL AND OPERATIVE. By George Peaslee Shears, B.S., M.D., Professor of Obstetrics and Attending Obstetrician at the New York Polyclinic Medical School and Hospital. Philadelphia: J. B. Lippincott Company. Price, $6.00.

This is one of the most satisfactory and practical works on obstetrics, both from the standpoint of the physician and student. It is complete and yet compact, offering in its 640 pages all the essentials necessary to qualify the successful obstetrician. The work is divided into three parts, the first dealing with the diagnosis, management and physiology of labor and the puerperium; the second, with the pathology of pregnancy and labor; the third, taking up the details of obstetric surgery, and the fourth, pathology of the puerperium. The 419 illustrations are exceptionally clear and instructive. For the busy physician, one could hardly select a better aid to assist him in this very important branch of his work.

C. M. W.

SOCIETIES

THE PHILADELPHIA POLYCLINIC OPHTHALMIC SOCIETY

Stated meeting, April 13, 1916, Dr. William Zentmayer, Chairman. A symposium on "Diseases of the Lacrimal Organs" was presented.

The Anatomy and Physiology of the Lacrimal Apparatus. Dr. W. W. Watson gave a brief review, referring especially to those anatomically predisposing factors that particularly lend to the development of obstruction in the lacrimal passage.

The Etiology of Stillicidium. Dr. William Zentmayer said that epiphora occurs when either as the result of overstimulation of the lacrimal secretory apparatus the flow of tears is in excess of the capacity of the drainage apparatus or where with normal or abnormal stimulation there is some abnormality of the lids or of the lacrimal passage.

Overstimulation may be either reflex or central. Psychical weeping is of central origin. Dr. J. C. Carpenter recorded a case of epiphora which was apparently due to an irritative central lesion of specific origin. The epiphora met with in exophthalmos, tabes, syringomyelia, pregnancy, and migraine is probably reflex in origin; while that due to corneal and conjunctival irritation as in foreign bodies and phlyctenular disease, also in refraction errors, as well as that occasionally met with in cataract, as pointed out by deSchweinitz, is typically reflex. In the latter instance probably, as deSchweinitz says, it is the result of the uveal disturbance which according to Risley is so frequently a causative factor in the production of cataract. Epiphora occurs when, as the result of facial palsy, winking is in abeyance or the lids are no longer in close relation with the globe, or where they fall away from the globe from loss of muscular tone in senility, or are drawn away by cicatrices in the neighborhood of the lids or as the result of chronic inflammation of the skin of the lids, lid margins, conjunctiva or, as pointed out by Dewey, by maladjustment of nose glasses of the "sure-on" type. Epiphora also occurs when there is obstruction in the lacrimal passages. This may be congenital or acquired. Congenital types are absence of the puncta or canaliculi and atresia in the canal, usually at the lower third, or more frequently nonpatency of the nasal end (Hasner's valve). Acquired obstructions to the nasal passages arise from foreign bodies, such as cilia, and fungoid growths as leptothrix, streptothrix, penicillum and actinomycoses or concretions; or it may arise from burns or wounds, and from intranasal diseases. Dr. Zentmayer then considered stenosis of the lacrimal duct, dacryocystitis, acute and chronic, and mucocele.

The Conservative Treatment. Dr. S. D. Risley (by invitation) in discussing the nature and management of affections of the lacrimal drainage system urged the importance and relative value of conservative treatment. He regarded the reputation for chronicity of these affections as due in large measure to the violent methods of treatment to which they are often subjected. He was led to adopt this view by a study of the anatomical character of the nasal duct in a large number of skulls and wet preparations. The irregular surface of the bony duct, even in dried preparations, made it quite impossible to pass the large-sized probes, which had been employed by some surgeons, in any of the skulls examined without fracture of some portion of the projecting walls of the duct, and in two specimens not even the smaller probes could be passed without injury. After these studies he lost the idea that the nasal duct was a drainage tube like a drain pipe. A more correct conception is that of an irregular fissure or slot-like passage for the tears, lined by mucous membrane. He pointed out that this mucous membrane duct is surrounded by a system of veins in health, like cavernous or erectile tissue, which, when congested from any cause, must compress the mucous duct and close its lumen more or less completely in many portions of its irregular surface, and in this manner cause a retention of tears. Dr. Risley said that this retention was a common experience in acute coryza and other systemic states causing edema of the mucous membranes; e. g., autotoxemias, common "colds," etc. These considerations had many years ago led to the adoption of more conservative methods in the treatment of lacrimal obstruction, and clinical experience had soon demonstrated its greater value. The habitual employment of probes was soon abandoned and he had been able to give a more favorable prognosis. The discouraging cases were those who had been subjected to injury from the forcible introduction of probes. If, in the attempt to force a probe down to the floor of the nostril back of the inferior turbinate bone, the mucous membrane had been torn through and its surrounding congeries of blood vessels injured, the prospect of a permanent cure was remote. Dr. Risley thought that permanent strictures of the duct were likely to occur after such an accident, and the chronic cases of purulent and mucopurulent dacryocystitis liable as a sequel.

Dr. Risley's method in acute cases was, after the instillation of cocain, to dilate the inferior punctum and canaliculus with a dilator, which he had devised, and then with the fine cannula of his lacrimal syringe irrigate the sac with an alkaline unirritating lotion. If the lotion passed through the nasal duct, the prospect of speedy recovery was good. If the lotion returned through the canaliculi into the conjunctival sac, a few drops of a solution of cocain and adrenalin were carried into the sac and allowed to remain for ten minutes and a second trial made to force the solution through the nasal duct. Failing in this, an alkaline astringent wash was prescribed to be instilled into the conjunctival sac at intervals until the following day. The attempt to irrigate the duct was then repeated and usually was successful. If not, after thorough cocainization, a cautious attempt was made to pass a No. 3 or No. 4 of the Bowman's series of probes, or a fine silver probe with a small bulbous extremity. If successful in this attempt, irrigation followed and the recovery resulted, often without any subsequent resort to probing. In long-standing cases he had found that frequent irrigation with a wine-colored solution of iodin was sufficient, in sterilizing the sac and duct and through its stimulation, to restore the parts to health. He recalled the former years when the clinic brought many patients daily who sat with Bowman's probes in their tear ducts, but said that now a visit to his clinic would never discover a single example, and only rarely the temporary passage of a probe.

Operations for the Removal of the Sac. Dr. Posey gave the details regarding the indications and method for the removal of the lacrimal sac. He said without complete local anesthesia removal of the sac *in toto* was extremely difficult if not quite impossible. He injected the region about the sac freely with nine parts of a 2 per cent. solution of novocain and one part of a solution of 1 : 3,000 of adrenalin.

Dr. Posey advocated Müller's method, but said that he did not think this operator laid sufficient stress on the palpebral ligament as a landmark for the location of the sac. Finding the teeth of the Müller speculum liable to cause injury to the cornea in the event of the instrument slipping, he had substituted blunt hooks. In order to avoid leaving any suppurating mucous membrane, Dr. Posey advised the slitting up of the canaliculus and the thorough curetting of the mucous membrane lining the tube in every instance. He had seen a disfiguring scar from the operation in but one instance out of the seventy-five or more removals of the sac he had performed. This was due to a keloid overgrowth of the lips of the wound.

While the obliteration of the sac permanently closes the lacrimal passages, the chief source of lacrimation in the case of lacrimal disease, i. e., the irritation of the mucous membrane by the retained mucopurulent discharge, is removed, so that lacrimation is slight and patients are usually grateful for the relief afforded.

Dr. Posey recommended the removal of the sac in all cases of mucocele, in all long-standing inflammations of the mucous membrane of the sac and in all cases of lacrimal stricture where styles failed to give permanent relief.

Walter W. Watson, Secretary.

PHILADELPHIA LARYNGOLOGICAL SOCIETY

Meeting of Oct. 3, 1916

Tonsilloscopy and Curettage of the Tonsils in Adults. Dr. Thomas R. French, Brooklyn, called attention to a new method of examination of the tonsils by transillumination in situ, which is effected by means of a diagnostic electric lamp carried on the end of a pencil-like rod. To one end of the rod, the cords to the battery or current find attachment. The illuminated end is bent at an obtuse angle about one inch from its extremity. The lamp is a small tungsten, shaded at its end and on three sides by a closely fitting hood. The light is passed into the mouth and behind the tonsil and held firmly against the posterior pillar and the posterior surface of the tonsil. The hood serves to throw the light forward through the tonsil under observation. In some cases a 4 per cent. cocain solution is first applied to the posterior tonsillar surface.

Under transillumination the tonsil of health presents two parts for examination, namely the glandular tissue and the pillar. These are of two well contrasted colors. The glandular tissue is of a uniform amber. The color of the pillar is deep crimson. Any deviation from this normal color relation is indicative of disease.

French divides the tonsils into six arbitrary groups: (1) Tonsil of health. (2) Borderline conditions, e. g., upper portion of tonsil of deeper color; deepening not uniform, e. g., hyperemia. (3) Superficial abscess. (4) Deep abscess; center or a limited area darkened, of same color as anterior pillar. (5) Considerable general disease; no abscess but all of the gland shows a darkening; there is loss of contrast with color of anterior pillar; some very dark points. (6) Extensive general disease; tonsil all dark; no contrast with pillar.

A dark room is not essential for these examinations. For more accurate study a metal observation tube of one-half-inch bore, about four inches long, is used. It carries a convex lens near its distal extremity, which can be focused and is really a simple microscope. One end of the scope is applied directly to the surface of the transilluminated tonsil. The eye is closely applied to the other end.

Tonsils which have been removed are studied under transillumination in a small dark chamber, specially constructed and electrically equipped. Histologic studies are made to verify preoperative findings.

French advocates the conservation of tonsils and the curettage of circumscribed pus pockets and diseased areas, the limits of which can, by his methods, be accurately determined.

Sidney L. Olsho, Reporter.

COUNTY SOCIETY REPORTS

BERKS—SEPTEMBER, OCTOBER

At the September meeting of the Berks County Society a paper on "A New Method for Auditory Percussion of the Chest" was read by Dr. Robert M. Alexander. By his method a specially devised stethoscope having two diaphragms and made in the form of a drum is employed. The hand placed over the stethoscope is used to conduct vibrations to one of the diaphragms. The other diaphragm is placed on the chest wall and the fingers of the hand holding the stethoscope are percussed. By this method it was claimed that more vibrations are conducted to the examiner's ear and it is possible to detect slighter changes in pitch than is possible by the usual method of percussion. A method by which the stethoscope is placed over the sternum or spinal column and percussion practiced on the two sides, comparing them, was also explained.

At the October meeting Dr. A. B. Hirsh of Philadelphia read a paper on "Neuritis." Successful removal of neuritis calls for most careful diagnosis by exclusion of a variety of conditions closely resembling its nerve lesion. A sciatic neuritis may be suggested by the involved area, the lameness and the radiating pains of a sacro-iliac subluxation. Aside from the history of accident, overextending and overflexing the thigh, with the leg fully flexed at the knee and the patient lying on a firm cushion or mattress, would at once prove the exact site of the injury; again, by rocking the pelvis this site may be confirmed. The pains that radiate from the relaxed structures of the enfeebled or the exhausted spinal column need careful differentiation. The spurious pains of gluteal or crural fibrosa differ from neuritis, in the pain being referred not to the sciatic nerve but to the nearby muscular and fascial structures, in an absence of tenderness over the nerve trunk; also the pain is less radiating and less severe though more constant; pain is aggravated by the particular movements of these muscles. Pain in the back on long standing should suggest possible tuberculosis of the spine; there may also be a girdle sensation which suggests vertebral disease. Contracture of any of the intrapelvic muscles may simulate the pain of sciatic neuritis. One should not mistake disease of the hip joint having reflected nerve pains about the pelvis for sciatica or neuritis. Subacromial bursitis should be kept in mind when neuritis about the shoulder is suspected.

Among the causes of neuritis are trauma, acute infectious diseases, rheumatic polyarthritis, erysipelas, sepsis, and enteric, scarlet, yellow and cerebrospinal fevers, gonorrhea, pertussis, pneumonia, influenza, Hodgkin's disease, intestinal stasis, progressive muscular atrophy, bulbar paralysis, tabetic neuritis, polyneuritic ataxia.

The sequelae are compression of nerve tissue and pain. The nerves most exposed to trauma are the superficial branches of the facial and trifacial, the suprascapular, the circumflex and the musculospiral, the intercostal, the crural and, most frequent of all, the sciatic.

Successful treatment calls for exact localization of the inflammatory exudate, and here the wave current from the high-power static machine becomes a necessity. In addition to the use of drugs required to overcome the cause of disease, radiant light and heat followed by the static wave current, with or without the static brush discharge or static sparks, are to be applied over the aching nerve and spasmodic muscles, just as when due to other causes. The chief indication is removal of the offending exudate through the static wave current with the same electrode used in the localization. About the face it is often necessary to use the static brush discharge.

Dr. Francis Ashley Faught of Philadelphia read a paper on "Blood Pressure and the Use of the Sphygmomanometer." The value of the routine estimation blood pressure depends not only on the reliability of the instrument and the accuracy of the technic employed, but on the interpretation placed on the figures obtained. Practical experience and clinical contact with many physicians teach that comparatively few have mastered the details of this most important test sufficiently well to admit of much dependence being placed in their readings. Reliable blood pressure data obtained by proper technic and thoughtfully interpreted is of immense value in the study of nearly all cardiovascular and renal problems. Unreliable data of any kind, particularly that obtained by the aid of an instrument of precision, is not only without value but may actually prove dangerous by causing errors of judgment, false conceptions and consequent improper management of cases.

Formulas for the determination of cardiac energy, load and overload, which are based on the pulse pressure or the diastolic pressure, should be employed with great caution as the results obtained by them are not in accord with clinical experience. The work of the heart is best indicated by the height of systolic pressure, and cardiac overload is best determined by comparing the observed systolic pressure with the normal average systolic pressure for the same age.

Clara Shetter Keiser, Reporter.

CHESTER—OCTOBER

The Chester County Society met October 17 at the Phoenixville Hospital, with two distinguished members of the medical fraternity of Philadelphia present.

Dr. J. B. Carnett of the University of Pennsylvania staff, in a discussion on "Minor Surgery," first took up hernia and told how useless was the wearing of a truss in any but exceptional cases (those of young children). Truss in a majority of cases will not hold up a hernia, as it is usually fitted at the drug store and is no fit at all. The patient will later have to undergo operation, probably after strangulation has occurred, and danger is greater. If strangulation has occurred do not attempt taxis; you may replace the intestine temporarily but the trouble is bound to recur. Operation for hernia is now done very satisfactorily under local anesthesia.

For empyema, incision with free drainage between the ribs (avoiding the intercostal artery) may be done at home under local anesthesia; it is not always necessary to take out a portion of a rib. In placing your rubber tubing for a drain be sure to stick a safety pin through the tube in all cases so as to prevent the tube from getting into the cavity and being lost. Tetanus is a rare condition now in the University Hospital as all the injuries occurring in stables, or barnyards, or open wounds full of dirt receive an immunizing dose of tetanus antitoxin. Breast tumors should all be removed at once no matter how slight, for even if benign they may later become malignant. Sutures in the majority of cases are left in too long. They are apt to form scar from pressure. Some may be removed in forty-eight hours; all should be removed in five days. For abscess good free incision should be made without waiting until it points; incise early, put in drain and relieve the tension. For carbuncles, do not fasten dressing on with adhesive strips as it pulls out the hair, opens up the hair follicle and invites infection. Bandage may not make as neat a dressing but it is more scientific and will be more comfortable. In discussing rectal conditions Dr. Carnett said that a patient applying for treatment at your office would make his own diagnosis (hemorrhoids), but you should make a thorough examination with patient in the knee-elbow position. It may be a fissure in ano and treatment is to overstretch the sphincter muscle. If ischiorectal abscess, simple incision may later develop into a fistula in ano and so it is better to do both operations at the same time. Local anesthesia is becoming very popular, but Dr. Carnett's preference is eucain. It can be sterilized by boiling and is more staple than cocain. Novocain and ethyl chlorid are not obtainable at the present time. He gives morphin to fulfill a specific purpose to relieve pain and gives sufficient to produce the result whether it be ⅛, ¼ or ½ grain, and does not feel that he has ever done any injury to his patient by its administration.

Dr. George E. Pfahler of the Medico-Chirurgical College, and director of the Roentgen-Ray Laboratory in the same institution, gave a most interesting lecture with lantern slide demonstrations on "The Roentgen-Ray Treatment of Cancer." Cancer is increasing at an alarming rate, having reached 14 per cent. of the total death rate of the country. To lower this we must get rid of the lesions which later develop into malignancy, such as warts, moles, slow healing ulcers, old scars, chronic eczema and keloids. He showed a number of cases of epithelioma of the lip before and after submission to the rays, with marked improvement and apparent cures. Dr. Pfahler described his electrothermic coagulation method, cooking it off as it were, with which he has had most brilliant results. A number of cases have been referred to him from the surgeons as being inoperable in which he has had a complete cure. Some of these cases had to be supplemented with a plastic operation for cosmetic purposes. He advises all surgeons after removal of cancer to have one or more applications of the rays so as to destroy probable cells underlying the deeper tissues. Sarcoma, he finds, yields more favorably than carcinoma. Some of these cases of the lip and about the mouth he treats with a combination of radium and Roentgen ray, the radium being placed on the inside. Better results are obtained from the use of the Roentgen ray than radium alone but used in combination they are most effectual. A number of slides were exhibited, showing destruction of bone and its recalcification at different stages under Roentgen-ray treatment. Regarding Colles' serum he does not feel that it is of much value, giving as an example a case of multiple sarcoma treated with the serum in which he applied the rays to one of the growths which rapidly disappeared, the others remaining as they were, thus proving that it was the rays and not the serum that did the work.

The hospital nurses had prepared a dainty little luncheon in the dining room which was thoroughly enjoyed by those present. After a vote of thanks to the distinguished gentlemen from Philadelphia the meeting adjourned.

D. Edgar Hutchison, Reporter.

DAUPHIN—OCTOBER

The Dauphin County Society met October 3 in Odd Fellows Hall, Millersburg. President Kilgore called the meeting to order at 3:30 p. m.

Dr. John B. McAlister read an interesting paper on "The Value of Medical Organization," in which he most ably pointed to the fact that only through organization can the medical profession get the real benefits to be derived from medical practice both professionally and financially. It is the meeting of the medical men for the discussion of topics of interest that fits them the better for the future. These organizations help us to understand each other better because they make us know each other better. They strengthen us because we can glean many good points from our neighbors' experiences. It is through organization also that we can protect ourselves against acts that tend to injure us individually as well as collectively. If we unite in efforts for the bettering of the medical profession, without a question we can obtain it.

After the reading of the paper a petition for a branch society was presented and acted on. It was the desire of the physicians of the upper end of Dauphin County that a branch of the Dauphin County Society be established so that they too could derive the benefits of the society. Because of the lack of good train service they are unable to attend the meetings which are usually held in Harrisburg. These physicians expressed themselves as realizing that membership in the county and state societies was essential if the most good was to be obtained from the practice of medicine. After considerable favorable comment the petition was granted; many of the upper end men availed themselves of the opportunity of joining the county society and immediately arranged for the establishment of the branch. Dr. Rickert of Millersburg was appointed temporary chairman.

Harrisburg had sixteen and the upper end men nine active, enthusiastic and energetic physicians present at the meeting.

H. Hershey Farnsler, Reporter.

MONTGOMERY—SEPTEMBER

The Montgomery County Society met at Charity Hospital, Norristown, September 6.

Dr. J. B. Carnett of Philadelphia, in a talk on "Minor Surgery," took up briefly diseases of the rectum and spoke of hemorrhoids, cancer and fissure. Pain is most frequent with fissures and abscess, and in strangulated hemorrhoids. In dealing with abscesses they should not only be opened but thoroughly curetted or they will nearly always lead to fistula. Hemorrhoids often cause anemia due to bleeding and very often can be relieved by turning out the clot. In cases of cancer occurring in persons from 45 to 50 years of age, often the first symptom is the early morning diarrhea. Ribbon-shaped stools, thought once to be diagnostic of cancer of the rectum, are not diagnostic of the disease. Syphilis of the rectum is recognized by indurated, multiple lesions.

In speaking of hernia, Dr. Carnett said that operation should be performed unless contraindicated. The mortality is so very low that it need scarcely be considered. Never put on a truss over a garment because, the garment slipping, the truss never stays in place. It must be next to the skin. The failure of most trusses is on account of patients' taking them off at night, etc.; they must be worn constantly even in the bath tub. In strangulated hernia never try taxis if the hernia is over four hours old, and never try it longer than five minutes. If the gut does not slip back, an operation is indicated.

Dr. Carnett then invited the members to ask questions, which he answered. As to antitoxin in punctured wounds, it should always be given and frequently a second dose within a week. As to burns, tubs for large burns, picric acid, 1 per cent., for small burns, weaker solution for larger. As to proctoclysis, always decrease the amount of salt in crippled kidney. Do not use the clamp method but have the reservoir nine inches above the bed with the tube wide open so that there will be little pressure and gas may escape through the tube. Hypodermoclysis is painful and coming into disuse. As to shock, use morphin to reduce the pain and thus lessen the shock. Water in all possible ways, adrenalin and pituitrin are coming into favor.

This was a very popular meeting and all present took an active part in asking questions. A letter from the York County Society invited the society to be present at its next meeting, September 14, and urged as many as possible to attend.

Edgar Stanley Buyers, Reporter.

PHILADELPHIA—SEPTEMBER 27, OCTOBER 11

The Philadelphia County Society met September 27, at 8:30 p. m., President McLean in the chair.

Dr. Carl L. Alsberg, chief of the Bureau of Chemistry of the U. S. Department of Agriculture, addressed the society: In the work of the Bureau of Chemistry we have not only problems of the pure and applied sciences, but of regulatory work. It is the experience of the department that the regulatory work will overcrowd the scientific. Therefore we have separated the two, doing practically all the research work in Washington, three or four laboratories only being outside; one in Philadelphia dealing with cold storage and transportation of perishable products; another in Los Angeles considering the problem of utilization of lemon and citrous growths of not sufficiently high grade for shipment to the East; one in Indianapolis for the study of the fattening of poultry in the central packing house rather than on the farm to save the loss of weight in transportation. In Seattle we have a laboratory for the study of the best means of shipping fresh meat. Our regulatory laboratories are throughout the country, usually at ports of entry.

Agricultural chemistry has been developed into a series of specialties so that the original conception of its having to do only with agriculture is entirely changed. Nothing is less true than the old metaphor, "Dead as a clod." A clod is the least dead thing and the organisms contained therein have to be studied. One type of work with which we have to do, and which might be termed industrial chemistry, is concerned with the industries drawing their raw material from agriculture; the manufacture of cotton and wool, of food products, etc. With the development of these industries and the improvement of the market the farmer is in the end benefited. As an example, the potato crop is occasionally over-abundant and methods should be developed for the use of the potato in other than the present ways. Work has also been done in attempting to dry the potato which is 80 per cent. water and therefore not adapted to shipping. The utilization of Kaffir corn, the production of which is limited only by the demand, is another problem well worth study. The best method of building refrigerator cars also claims our attention. In the study of the breakage of eggs a seismograph has been built in freight cars that the locations at which breakage occurs may be recorded and this resulted last year in an enormous saving to the railroads. Another type of our investigations is a study of explosions. Suspension of fine dust is at times responsible for explosions occurring in mills and in this connection a whole series of physicochemical studies is necessary to determine the factors involved.

The Food and Drugs Act which has been in operation for ten years is not only a health measure, but is designed to protect the manufacturer against unfair competition. Under the clause regarding the misbranding of the so-called patent medicines we have made hundreds of prosecutions. The law in this matter, however, applies only to the label on the article and not to the extravagant advertising matter. Whether this industry shall continue to flourish under such extravagant advertising claims remains to be seen. There is scarcely a textbook on therapeutics by our best men which does not contain statements justifying some of the worst claims of the advertising matter of some of these proprietary preparations. The difficulty lies in the loose way in which medical terms are used by physicians.

The Philadelphia County Society met October 11, at 8:30 p. m., President McLean in the chair.

"Unsuspected Syphilis of the Ear, Nose and Throat" was presented by Dr. G. Hudson Makuen: Syphilis is one of the darkest blots on the medical escutcheon. We find scant satisfaction in having discovered the particular micro-organisms of the affection when we have no power to prevent its entrance into the body or to dislodge it, once it has entered. Our failures to cure the disease are due to a lack of persistency in treatment rather than to inherent inadequacies of the remedial measures. From the viewpoint of the otolaryngologist syphilis is far more frequent than is generally supposed, and when unsuspected and improperly treated, is exceedingly destructive to the respiratory, phonatory, articulatory and auditory functions. Innocently acquired syphilis appears chiefly in the buccal and pharyngeal cavities and may escape diagnosis because it occurs unexpectedly. Deaf-mutism is frequently the result of the congenital form of syphilis and sometimes also of the hereditary forms, and its pathology shows it to be of labyrinthine origin. Profound deafness occurring suddenly is nearly always of syphilitic origin. Dr. James Kerr Love of Glasgow says that congenital syphilis is the most disastrous thing among us, and I am in full accord with him when he suggests that it should be made notifiable in order to check its further dissemination.

"Unsuspected Cutaneous Syphilis" was given by Dr. J. F. Schamberg: It has been said that syphilis is the great imitator. Many patients exhibiting light manifestations of acquired syphilis have no knowledge of having contracted the disease. The great weakness of the Wassermann test is the tendency to produce negative reactions in cases which should show the positive. A negative Wassermann is only presumptive evidence of the absence of syphilis. Particularly when the Wassermann reaction is used as a therapeutic guide the more delicate antigens must be employed. We get the late relapses in syphilis because the spirochete is distributed during the secondary period to the various tissues of the body, some of which are beyond the highways of the blood and lymph stream and consequently are not attacked by the high power medicament; secondly, because the spirochete goes into a resting and resistant stage. The bulk of authoritative opinion regards the spirochete as a protozoan, though this is not proved. If it be such it may pass into an encysted stage and become less vulnerable to the medicament employed. If it be a bacterium it can go into a resistant spore stage. The late manifestation may be excited by trauma acting on these resistant forms. Syphilis is one of the largest factors in human mortality, but as Metschnikoff has said, it is a hidden factor which does not appear on mortality lists and death certificates. I believe, however, that the time will come when we shall be able not only to arrest the disease and cure it in the early stages, but cure even the late and resistant forms of syphilis.

"Obscure Forms of Syphilis of the Nervous System," was given by Dr. William G. Spiller: In every case of organic nervous disease the possibility of a syphilitic etiology should be considered, although it should not be forgotten that syphilis produces no immunity against other diseases. The work of Raven has shown that, in a very large proportion, families of syphilitic men manifest evidences of syphilis. The work also of Hyde in the study of the families of paretic men has shown that the familial involvement is extensive. There is also evidence that syphilis may be transmitted to the third generation. With such facts as these it seems probable that this disease may have an important relation to familial affections of the nervous system not usually recognized as syphilitic.

Syphilitic disease in the vertebral column may produce a condition resembling that of tuberculosis or tumor of the vertebral column. In some instances lumbar puncture may aid in the diagnosis, but the dura offers resistance to all lesions developing on its outside, and there may be no implication of the cerebrospinal fluid. Radiculitis is a common and important manifestation of syphilis. It is a subject which has appealed especially to French writers. It implies inflammation or degeneration of spinal roots within the spinal dura, and the condition may give the symptoms of a focal spinal lesion. The clinical distinction from neuritis is found chiefly in the fact that in radiculitis the disturbances are of root type, whereas in neuritis the signs indicate involvement of the peripheral nerves. In the acute form of radiculitis the prognosis often is good. Syphilis may appear in the form of musculospiral palsy like that produced by lead. The blue line on the gums and the abdominal pain, of course, are absent, but there may be bilateral wrist drop with the escape of the supinator longus resembling closely the condition of lead palsy.

Individual cranial nerves may be affected so that there may be an involvement of one or both facial nerves or one or both trigeminal nerves. In such instances the lesion is probably syphilitic meningoencephalitis. The occurrence of syphilitic multiple neuritis is still a matter of dispute. Some recent Italian investigators seem to have demonstrated that congenital hydrocephalus may be syphilitic in origin. Syphilitic implication of the roots of the cauda equina may give a clinical picture that can scarcely be distinguished from that of tumor. Muscular atrophy caused by syphilis is a well-recognized condition, and usually associated sensory disturbances will permit the diagnosis from spinal muscular atrophy. There are numerous symptom-complexes produced by occlusion of different arteries of the central nervous system, usually syphilitic in origin, which are capable of diagnosis. Several of these symptom-complexes are described in the paper. The resemblance of certain forms of syphilis to multiple sclerosis is discussed, as are also the resemblance in rare instances to acute poliomyelitis and the occurrence of myopathy in syphilitic children. In rare instances where no definite signs of syphilis can be detected it is possible that epilepsy may be caused by congenital syphilis.

"Unsuspected Congenital Syphilis," was given by Dr. Edward Martin: On the authority of Dr. Allen J. Smith the infecting agent of syphilis is a protozoan of unknown life history. There is no absolutely convincing proof that having once infected an organism it is ever eradicated. It seems well proved that the infection can be transmitted to the third generation. It is particularly in regard to the cardiovascular, cerebrospinal and abdominal visceral lesions that an underlying syphilis is overlooked. A conservative estimate gives 10 per cent. of the population syphilitic, and in so far as human testimony avails a large proportion of these are hereditarily so. Syphilis renders the system vulnerable to practically every form of infection, including tuberculosis and cancer. If the young apoplectic be regarded as usually syphilitic, which he is, it seems logical that a similar etiology may be attributed to the old apoplectic. Our ideal remedy would be a nontoxic mercury and arsenic compound. Theoretically, at least, a nontoxic mercury compound should be the next choice. As to the evidence before us, no man can yet say that syphilis is a curable disease. It should be a disease as strictly under the supervision of health authorities as any other contagion.

"Modern Diagnosis and Results Clinically, Serologically and Sociologically of Salvarsan and Its Substitutes in the Treatment of Syphilis," by Dr. B. A. Thomas and Dr. H. J. Barnett, was read by Dr. Thomas: The paper is in substance that which I read a few weeks ago in Scranton at the meeting of the state society, with the addition of about fifty cases and a "follow up" report in a considerably larger number. We would particularly direct attention to the necessity of the heroic treatment of syphilis in its early stages. Some of our patients received their first treatment six years ago, and while not sure of the end-results, we feel that sufficient time has elapsed to justify certain deductions.

The most efficient treatment rests on early diagnosis. The Wassermann reaction furnishes the best control of treatment and is the most reliable index of cure subsequent to proper treatment. The sheet anchor in the treatment of syphilis is salvarsan, neosalvarsan or one of their substitutes. It is of paramount importance that the injections of arsenobenzol, in the beginning, be administered as early as possible and as intensively in full doses commensurate with the physiological tolerance of the patient. Serologically, judged on a three-month to a five-year duration, syphilis in the chancre stage if diagnosed early may be cured by two injections of salvarsan or neosalvarsan; if diagnosis be made before the advent of a positive Wassermann reaction one dose of either of these drugs *may* be sufficient. The best substitute for salvarsan and neosalvarsan is the Polyclinic preparation of arsenobenzol. Sociologically, since only 10 per cent. of syphilitics return for hospital treatment until discharged cured, there should be cooperation on the part of civil authorities and health boards for the control and treatment of this disease. This, however, will not be realized until all hospitals receiving state aid are compelled to maintain evening dispensaries with paid attendants for the proper treatment and admission, when necessary, of venereal patients.

Dr. Edward A. Schumann, in discussion: The clinical importance of syphilis in its relation to gynecology lies not so much in the direct manifestations of the specific agent as in its remote activities in disturbing the physical balance of the organism and so rendering more severe any existing lesions of the pelvic organs, even though these lesions be of entirely extra-syphilitic origin. The knowledge of the process by which women become infected with syphilis is still quite fragmentary. It is my opinion that seminal infection is common. In the course of the disease systemic reactions seem to be more pronounced in women than in men. Syphilis of the nervous system is far more common in men than in women. The different anatomical portions of the female genital tract vary greatly in their reaction to syphilitic infection; vaginal syphilis is rare; primary, secondary and tertiary lesions affecting the cervix are fairly common, while no case of primary or secondary lesions of the uterine body has been recorded, with but one indefinite case of tertiary lesions. Syphilis unsuspected may be an important causative factor in menstrual disorders. Certain cases of intractable uterine hemorrhage are frequently the result of syphilis and may be entirely cured by antisyphilitic treatment. The studies of Graefenberg and of Gellhorn and Ehrenfest go far toward establishing the fact that during the secondary stage, syphilitic women may transmit lues by coitus, even though there be no specific manifestation about the pelvic organs. Graefenberg says that it is possible that the search for spirochetes in the scretions of vulva, vagina and cervix will become as important a part of our diagnostic technic as is the staining of smears for the gonococcus. The frequency of syphilis among parturient women is probably much greater than was supposed prior to the discovery of the Wassermann reaction. Of great importance is the presence of latent, unsuspected syphilis in the pregnant woman. This is held to be transmitted from the fetus through the medium of the placenta to the mother. In this condition the woman may be entirely free from symptoms for an indefinite period and may even give birth to several healthy children before the latent syphilis becomes active. In disease of the female generative organs syphilis should be excluded by a Wassermann test. If the lesions be obscure and of doubtful character syphilis should be suspected even in the presence of a negative Wassermann reaction.

Samuel McClary, III, Reporter.

WAYNE—OCTOBER

The Wayne County Society met at the Allen House, Honesdale, October 24. There was a good attendance and the members enjoyed a dinner together at one o'clock, after which they repaired to the parlors where routine business was transacted with President Brady in the chair. Dr. Sherman Gilpin of the Jefferson Medical College in Philadelphia was present and read an able paper on "The Diagnosis and Treatment of Common Nervous Diseases." Dr. Walter R. Krouss, assistant superintendent at the Farview State Hospital, was elected to membership; nearly all the physicians of the county now being affiliated with the society. The next meeting will be held in Honesdale in December. R. W. Brady, President.

YORK—OCTOBER

The York County Society met in the Colonial Hotel Parlor, York, October 12. President Melsheimer called the meeting to order at 1:30 p. m. Drs. W. H. Treible and Gibson Smith of York, Dr. Long of Philadelphia and Dr. Keepers of Greencastle were visitors.

One of the largest audiences of the year had assembled to hear the guest of the day, Dr. George P. Müller of Philadelphia, who discussed "Surgical Treatment of Certain Phases of Visceroptosis (Intestinal Stasis)." The various phases of his discussion were illustrated by appropriate lantern slides. Dr. Müller was given a unanimous vote of thanks and was elected to honorary membership in the York County Society.

The Board of Trustees and Staff of the York Hospital and Dispensary Association have given their consent to the society holding clinics in the hospital. All outstanding bills were ordered paid.

E. S. Stambaugh, Reporter.

NECROLOGY

IN MEMORIAM

Matta Berry Longwell, M.D.

(Resolutions adopted at the meeting of the Tioga County Medical Society, Sept. 1, 1916.)

Whereas, Almighty God has seen fit to remove from our presence Dr. Matta Berry Longwell, member of our society, member of the state society and of the American Medical Association,

Resolved, That in the death of Dr. Longwell we have lost a member whose presence at our medical society meetings was always an inspiration to us. She was energetic and enthusiastic, having read and discussed many interesting papers.

Resolved, That we tender our sincere sympathy to the members of the family into whose life this sorrow has come.

Resolved, That a copy of these resolutions be sent to the family of the deceased, that a copy be sent to The Journal for insertion and a copy be placed on the minutes of this society.

T. D. Ditchburn,
S. P. Hakes.

IN MEMORIAM

Harry Huston Whitcomb, M.D.

(Resolutions on the death of Dr. Harry Huston Whitcomb, by the Montgomery County Medical Society at its meeting Oct. 4, 1916.)

It is with feelings of the deepest regret that within so short a period of time it again becomes the sorrowful duty of the members of the Montgomery County Medical Society to assemble and record the death of another one of its valued and most useful members. Dr. Harry Huston Whitcomb of Norristown died at Dr. Marvel's Sanatorium in Atlantic City, of myocarditis, after an illness of nearly eight months, on Sept. 28, 1916, aged 61 years.

Dr. Whitcomb was born in Philadelphia, Oct. 3, 1855, the son of Dr. John and Harriet Huston Whitcomb. He was reared in Montgomery County, the seat of his life work. He received his early education in the public schools and at Millersville State Normal School, after which he taught in the public schools of the county and then, under the preceptorship of Dr. William Pepper of Philadelphia, he studied medicine at the University of Pennsylvania, graduated in 1880, immediately afterward opened an office in Norristown and practiced here his chosen profession ever since. He was health officer of Norristown for years; county medical inspector for the State Department of Health; chief physician to the State Dispensary for Tuberculosis from its inception; physician to Charity Hospital and consulting physician to the State Hospital; school director, pension examiner, member of State Board of Charities, the Philadelphia and Schuylkill Valley Medical Clubs, and of the American Climatological Society, American Medical Association, Medical Society of the State of Pennsylvania, in both of which he held office, and the Montgomery County Medical Society.

Dr. Whitcomb was of a genial, happy disposition, beloved of his fellow physicians, and of the many people of a large practice. Gifted with a kind heart and a sympathetic nature, he exhibited in his intercourse with his fellowmen a warmth of disposition that gained for him in return their friendship and love. If the success of a man's life can be gaged by the good he has done in this world, and the way he uses his fellows, then our deceased brother has reached a high point of success.

He was, as a practitioner, competent and conscientious, an earnest and faithful physician, his desire was to respond to all calls on him, night or day, by rich or poor.

As a man he was a Christian gentleman of high moral sense and unimpeachable integrity. As a member of his local society he was true and steadfast, and ever ready and willing to discharge his duties, indeed a most faithful and ardent supporter of the society which he served as president one year, as corresponding secretary three years, and recording secretary for twenty-seven years.

His unflinching integrity, extensive information, punctuality, conscientious discharge of every duty devolving on him, made him a most valuable officer. His devotion to right in the face of every opposition, his meeting all questions with intelligent thought and investigation, his firm adherence to his convictions, made his opinion and advice reliable, trustworthy and influential on all points brought before us.

We shall feel his loss in the deliberations of our society with a pointedness that time and circumstances cannot entirely obliterate.

Your committee recommends the adoption of the following minute:

Whereas, It has been decreed by an all-wise providence to remove, by death, one of our fellow members and secretary, Dr. Harry Huston Whitcomb of Norristown; therefore be it

Resolved, That in the death of Dr. Whitcomb this society has lost a valued friend and most useful member, the medical profession a wise counselor and an active, able and earnest worker, and the community an honest citizen; and that we offer our heartfelt sympathies and condolence to the bereaved family in their loss; and

Resolved, That this resolution be spread on the minutes and published in the daily papers, and a copy be transmitted to the family of the deceased.

C. H. Mann, Chairman,
Reinoehl Knipe,
William G. Miller,
Committee.

OFFICIAL TRANSACTIONS

MINUTES OF THE PROCEEDINGS OF THE MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA, AT THE SIXTY-SIXTH ANNUAL SESSION, HELD IN SCRANTON, SEPT. 18-21, 1916.

MINUTES OF THE HOUSE OF DELEGATES

Monday Afternoon, Sept. 18, 1916

The House of Delegates of the Medical Society of the State of Pennsylvania was called to order in the rooms of the Lackawanna County Medical Society, Scranton, Pa., at 3:17 p. m., Monday, Sept. 18, 1916, by the President, Dr. John B. McAlister, Harrisburg.

The Committee on Credentials, consisting of Drs. William J. Wilkinson, Sellersville; George H. Boyer, Allentown, and Samuel C. Smith, Hollidaysburg, made a preliminary report, which was followed by roll call showing seventy delegates and six non-voting members present.

The minutes of the Sixty-Fifth Annual Session, as printed on pages 115-131 of The Pennsylvania Medical Journal for November, 1915, were presented and on motion approved.

President McAlister addressed the House as follows:

The highest honor the medical profession can confer on one of its members is the privilege of presiding over the House of Delegates of the Medical Society of the State of Pennsylvania. I fully appreciate this honor and with it the privilege of opening the Sixty-Sixth Session of this body, and at a period it seems to me the most important in the history of our profession. The problems we confront today are aimed at the very foundation of the social and business life of every practitioner regardless of the branch or department of medicine with which he is associated. If these basic and vital problems are not solved now and solved satisfactorily our profession will be confronted not only with much material loss but continuous discontent and dissatisfaction.

Our long struggle for higher standards of medical education has been fruitless in its results, and I believe we may for the present be content to leave it with the Bureau of Medical Education and Licensure. The Workmen's Compensation Law requires amendments to make it satisfactory to those physicians having to deal with it, but even in its present state it is neither so menacing nor as destructive as it first appeared. What concerns us most vitally just now is that a Health Insurance Bill is sure to be introduced in our next legislature. Such a law would have a tremendous effect on medical practice in Pennsylvania. The employer will naturally endeavor to keep down insurance expenses; the employee naturally will try to get as high benefits as possible; the physician will be between, naturally to be squeezed on both sides. Is the medical profession of this state to remain unheard as it was in the legislation relative to the Workmen's Compensation Act? Is it meekly to accept that which comes to it in a passive and inert way? It is the duty of every physician to familiarize himself with the proposed enactment, recognizing the fact that health insurance, sooner or later, is inevitable. Our great weakness has been that we have not been able to anticipate the great changes coming in our social and business life and to prepare for them. We are apt to allow things to drift and when the crisis comes find ourselves unprepared to meet them.

The Antinarcotic Law was conceived and enacted by lay legislators to rid our nation of a great evil. The Workmen's Compensation Law, in the interest of humanity, was not aided or abetted by our profession, yet we are vitally interested and the best friends any humanitarian movement can have.

If we do not take our part in the preparation and progress of the Health Insurance Bill, we will have to repeat the struggle of the medical profession in England. The purpose of the bill is to introduce into the United States the compulsory health insurance of Great Britain. We must anticipate matters vitally affecting the welfare of the medical profession, and be raised to the plane of leadership in public health problems, and not wait until these matters are forced on us and then assume an antagonistic attitude. It seems to me imperative that our Society should invite the homeopathic and eclectic societies to join with us and arrange for a united attitude of the profession either for or against the whole question of health insurance.

Effective organization of the medical profession was never so great as it is now. Our differences should be set aside for discussion of those matters in which we all agree in order that we may command public confidence and respect. The future medical practice will depend very largely on our attitude and activities. No effort should be spared to strengthen and coordinate the force of the men in Pennsylvania who are engaged in legitimate practice of medicine.

May this body, the duly elected representatives of 7,000 of the physicians in this state, and surely representing the thought of the whole profession, enter on these deliberations with concern and wisdom.

Announcement was made of the following Reference Committees appointed by President-Elect Codman:

Reference Committee on Reports of Officers and Committees.—Wilmer Krusen, chairman, Philadelphia; Frank P. Lytle, Birdsboro; Edward Lyon, Williamsport.

Reference Committee on Scientific Business.—Clarence R. Phillips, chairman, Harrisburg; Alexander Armstrong, White Haven; George C. Johnston, Pittsburgh.

Reference Committee on New Business.—John D. McLean, chairman, Philadelphia; Ira G. Shoemaker, Reading; William P. Burdick, Kane.

On motion the report of the Secretary was accepted as printed on page 935 of the September, 1916, Journal, and referred to the Reference Committee on Reports of Officers and Committees, and the financial portion to the Board of Trustees.

The report of the Treasurer was presented by Dr. George W. Wagoner, Johnstown, and referred to the trustees. (See pages 936 and 937, Journal for September.)

It was announced that the Trustees had appointed Drs. John B. Lowman, I. J. Moyer and F. L. Van Sickle as a committee to audit the reports of the Secretary and Treasurer.

The report of the Board of Trustees was presented by the chairman of the board, Dr. William L. Estes, and referred to the Reference Committee on Reports of Officers and Committees.

REPORT OF THE BOARD OF TRUSTEES

To the President and House of Delegates:

The Board of Trustees begs to report:

1. The finances of the Society, as has been shown by the reports of the Secretary and Treasurer, are in a satisfactory condition.

2. Notwithstanding repeated requests and warnings to the chairmen, the board has not received the required detailed reports of expenditures from the several standing committees of the Society. The board again calls attention to this fact and urges on the President and House of Delegates the advisability of appointing men on these committees who have a proper sense of their duties and responsibilities. It is utterly impossible for the Trustees to conduct the business affairs of the Society without proper budgets and a careful accounting for all required funds and the expenditures of the same.

3. Experience seems to show that the appropriation of 75 cents from the dues from each member of the Society will meet the average need of the Medical Defense Fund. The board, therefore, recommends the passage of the amendment to the by-laws offered by the chairman last year, namely, that 75 cents instead of 50 cents shall in future be appropriated to that expense fund.

4. The board recommends that the publication of the JOURNAL be continued for two years longer by the same arrangements as at present. A committee has been appointed to consider and make arrangements for the Society to own and conduct a medical journal of its own.

5. As results of and embodying the observation and reports by the several councilors, the board recommends the following amendments to the Workmen's Compensation Law:

First Amendment: Definition of Major Operation.

1. A major operation is a surgical procedure which entails immediate serious consequences to the patient.

2. It is a surgical procedure which requires skill and training to perform.

3. All operative procedures other than finger and toe amputations, cleansing and draining and closing of wounds, evacuating pus by incision, the manipulation and reduction of uncomplicated dislocations, the treatment of uncomplicated fractured ribs, the removal of superficial foreign bodies from the eyes, and the removal of subcutaneous foreign bodies, should be regarded as major operations.

The term major operation would include the setting of fractures of long bones and reducing of subluxations, providing accuracy and efficiency of reduction and retention be demonstrated by Roentgen rays taken before and after surgical treatment, and providing further that in all cases of fractures the attached form 4 be made out in duplicate and forwarded to the secretary of the Bureau of Workmen's Compensation.

Second Amendment: Extend the time of employer's liability for direct payment for treatment of employees from fourteen days to thirty days.

Third Amendment: Permit an increase of the maximum payment for medical and surgical treatment, etc., to $200, and allow a sliding scale of fees, the rate of charge to accord with those the physician in charge is accustomed to receive for a like service from other members of the same standard of living in his community.

It is gratifying to report for the third year that no business has required the attention of the Judicial Council.

Respectfully submitted for the board.

W. L. ESTES, Chairman.

REPORTS OF INDIVIDUAL COUNCILORS

The reports of Dr. William T. Sharpless, councilor for the First District; Dr. Theodore B. Appel, councilor for the Second District; Dr. William L. Estes, councilor for the Third District; Dr. Frederick L. Van Sickle, councilor for the Sixth District; Dr. I. J. Moyer, councilor for the Seventh District, and Dr. Jay B. F. Wyant, councilor for the Ninth District, were presented as printed in the September issue of the JOURNAL, pages 931-934, and referred to the Reference Committee on Reports of Officers and Committees.

The report of Dr. H. W. Gass, councilor for the Fourth District, was presented as follows and referred to the Reference Committee on Reports of Officers and Committees:

To the President and the House of Delegates:

As councilor of the Fourth District I was unable to visit any of the societies while in regular session except those of Snyder County and of my own county, Northumberland.

From the officers and members I learn that an excellent fraternal spirit exists among the physicians (with few exceptions) of the various societies. The bulletins show that splendid scientific programs have been held in every society of this district. Snyder and Huntingdon County societies have begun the publishing of society bulletins, which enable them to get much information to their members which helps them to keep in touch with the various workings of their societies.

I visited Huntingdon County at a special meeting when Dr. Posey of Philadelphia presented a most interesting paper along the lines of conservation of vision. There were physicians present from Blair and Mifflin Counties.

There have been no suits for alleged malpractice entered during the year.

The censorial meetings have been well attended, which speaks well for the fraternal and scientific interest shown by our physicians.

I consider the past year a decided success in the interests and results of society work in my district.

The following report of the Commission on Medical Expert Testimony, subsidiary to the Committee on Public Policy and Legislation, was read by the Assistant Secretary and referred to the Reference Committee on Reports of Officers and Committees:

REPORT OF THE COMMISSION ON MEDICAL EXPERT TESTIMONY

PHILADELPHIA, Sept. 9, 1916.

Dr. Wilmer Krusen, Chairman,
Committee on Public Policy and Legislation,
Philadelphia.

Dear Dr. Krusen: Enclosed please find report of Commission on Medical Expert Testimony.

Your Commission on Medical Expert Testimony respectfully submits that after discussions held at several joint meetings of County Medical and County

Bar Associations, it has come to the conclusion that it is inexpedient at present to advocate special legislation on the subject. Your commission therefore begs leave simply to report progress.

Very truly yours,

Joseph E. Willetts, Chairman,
Francis X. Dercum,
Henry W. Cattell,
John W. Boyce,
George G. Harman,
Harvey F. Smith,
Francis P. Ball,
Albert J. Winebrake.

The report of the Committee on Medical Benevolence was presented as follows and referred to the Reference Committee on Reports of Officers and Committees.

Report of Committee on Medical Benevolence

To the President and the House of Delegates:

Your Committee on Medical Benevolence begs leave to make the following report:

During the year Sept. 9, 1915, to Aug. 31, 1916, the committee has expended $250 on account of benevolence, leaving a balance in the hands of the treasurer of the committee of $232.72.

The report of the treasurer of the committee is herewith appended.

Respectfully submitted,

William S. Wray, Chairman.

RECEIPTS

Sept. 10, 1915. Balance on hand	$118.60	
Jan. 22, 1916. Received from Treasurer Wagoner	363.04	
Jan. 28, 1916. Interest on daily balance	1.08	
		$482.72

EXPENDITURES

Sept. 27, 1915	$ 25.00	
Nov. 27, 1915	25.00	
Dec. 31, 1915	25.00	
Jan. 5, 1916	25.00	
March 8, 1916	25.00	
March 9, 1916	25.00	
May 20, 1916	25.00	
June 10, 1916	25.00	
June 22, 1916	25.00	
Aug. 25, 1916	25.00	
		$250.00
Balance		$232.72

Edward B. Heckel, Treasurer.

Dr. H. W. Albertson, chairman of the Committee on Arrangements, made the following report:

Report of Committee on Arrangements

To the President and the House of Delegates:

Your Committee on Arrangements begs to announce that it has prepared for this Scranton Session in such a manner as was thought necessary and as printed in the official program and in the little booklet given out at the registration bureau. The committee on behalf of the Lackawanna County Medical Society wishes to extend a cordial greeting and hearty welcome to you all, with the hope that each and all will have a good time while in Scranton.

H. W. Albertson, Chairman.

The following report of the Committee on Scientific Work was read by the Assistant Secretary and referred to the Trustees:

Report of Committee on Scientific Work

To the President and the House of Delegates:

The Committee on Scientific Work begs leave to report that the program is completed and ready for distribution to the members. The committee has held two meetings at which most of the members were present; one member failed to report at either meeting.

Following the suggestion of the Trustees we have engaged stenographers to report the proceedings of each meeting.

The committee recommends that the Trustees authorize this committee to hold a scientific exhibit during the annual session of the society, including pathological specimens, Roentgen-ray photographs, physiological and chemical apparatus and methods and other exhibits as will represent new medical thought and progress. Such exhibits have been held for several years, but have been done through the initiative of the local committtee on arrangements. The bills for such exhibits in some instances have been paid by the Society. Such an exhibit is important and belongs to the work of this committee.

We also recommend that this committee be authorized to accept a certain number of papers for each section, which will be entered on the program to be "read by title" only and later published in the Journal. Two or three for each section would be sufficient. This would give the committee an opportunity to use more papers and would, we think, increase the number of papers offered. The Society is of sufficient size and importance to command the best work of its members, and this method would probably stimulate a better offering of papers.

We ask for an appropriation of $500 for the expenses of the committee; if the scientific exhibit is added to the committee's work an additional sum, to be determined by the expenses of the previous exhibits, should be added.

Respectfully submitted,

Henry D. Jump, Chairman.

Dr. Alexander Armstrong, White Haven, reported as a delegate from this Society to the Medical Society of New Jersey, that he attended the One Hundred and Fiftieth Anniversary Meeting of that society, and that he and the other delegates from this Society were cordially received and that they greatly enjoyed the meeting.

The Assistant Secretary read a communication from the National Association for the Study and Prevention of Tuberculosis, inviting our Society to send delegates to the North Atlantic Tuberculosis Conference held in Newark, N. J., October 20 and 21. The communication was referred to the Reference Committee on New Business.

The Assistant Secretary read the following resolutions adopted by the Board of Directors of the Allegheny County Medical Society on June 22, 1916, and the same was referred to the Reference Committee on New Business:

Resolved, That it is the conviction of the Allegheny County Medical Society that all commitments of the insane should, without exception, be by order of the court.

Resolved, That the Medical Society of the State of Pennsylvania be petitioned by this society to take a similar stand on this question and that the Medical Society of the State of Pennsylvania be asked to instruct its Committee on Public Policy and Legislation to have a bill drawn in accordance with the above resolution and have it presented at the next session of the legislature.

On motion of Dr. A. R. Allen, Carlisle, seconded by Dr. L. H. Taylor, Wilkes-Barre, the House ruled that all resolutions introducing new business be submitted in triplicate.

The following resolutions were presented by Dr. F. L. Van Sickle, Olyphant, and referred to the Reference Committee on New Business:

Scranton, Pa., Sept. 18, 1916.

To the House of Delegates of the Medical Society of the State of Pennsylvania:

The American Association for Labor Legislation has framed a tentative draft of a Health Insurance Act, which has been submitted to organized labor and to the medical profession as well as employers of labor in five states of the Union, for the purpose of receiving criticism on the character of this draft, and legislatures of several states are planning to introduce a measure of this sort for action in the near future. Inasmuch as legislation relative to health insurance may possibly be a subject for consideration in Pennsylvania in 1917, and inasmuch as the American Association for Labor Legislation has done much good work in gathering material of great value; be it

Resolved, That the work of the American Association for Labor Legislation be endorsed and that the tentative draft of a health insurance bill be favored as a model bill were such to come before the legislature of Pennsylvania.

Scranton, Pa., Sept. 18, 1916.

To the House of Delegates of the Medical Society of the State of Pennsylvania:

At the session of the American Medical Association in Detroit in June the report of the Committee on Social Insurance contained much of interest and value in its relation to the newer phases of medical practice under recent laws regulating workmen's compensation, health insurance, etc. The report was of sufficient interest to cause the House of Delegates to accept a report of the reference committee, which approved the undertaking of the Social Insurance Committee and recommended that each constituent state association be requested to establish a committee on social insurance to work in conjunction with the Committee on Social Insurance of the American Medical Association. In pursuance of this recommendation the following resolution is offered; be it

Resolved, That a committee consisting of a chairman and four members be appointed on social insurance. The duties of this committee will be to collect and receive all information relative to social insurance, be a source of information to the members of the State Society and the physicians of the state, and to work in conjunction with the like committee of the American Medical Association.

The following resolution was presented by Dr. John G. Wilson, Montrose, and referred to the Reference Committee on Scientific Business:

Resolved, That children stricken with infantile paralysis should receive special hospital treatment free, without regard to the financial means of the patient; that the child should be placed under the combined care and custody of the State Board of Health and the State Board of Education; that approved mechanical appliances should be furnished, and vocational and special education provided, adapted to his particular disability and capability; that children so stricken should be regarded as wards of the state until such time as they reach maturity and become self-supporting.

Dr. William H. Walsh, Philadelphia, presented the following resolution urging the abandonment of state quarantine at port of Philadelphia, and recommending that same be turned over to the federal government:

Whereas, The obligation to safeguard the health of American seaports by the application of quarantine laws and regulations rests primarily with the federal government, since the benefit obtained by the exclusion of epidemic diseases is not a local one, but equally enjoyed by the entire country, and

Whereas, For this reason the expense of maintenance of such protective measures should not be borne in its entirety by either the state or municipal government, and

Whereas, Uniformity of quarantine restrictions in force at all the ports of this country is essential in order that a maximum protection be afforded with minimum detention of commerce and without discrimination between the competing ports, and

Whereas, This can best be accomplished through federal control of all quarantine stations, and

Whereas, The United States Public Health Service, through its agents at foreign ports, by the provisions of international treaties, has an advantage over local authorities both in securing information as to sanitary conditions at foreign ports and also in the application of protective measures against shipping proceeding from such foreign ports to ports of the United States, and

Whereas, The present joint control of the maritime quarantine function at the port of Philadelphia by the state and the United States government imposes an expense on the state of Pennsylvania without materially contributing to an increased efficiency of administration of quarantine laws and regulations by the federal authorities, and

Whereas, The United States Public Health Service has demonstrated efficient and unbiased judgment in its administration of the quarantine function at all other ports of the United States, and more especially because of its extensive equipment and organization at Delaware Breakwater, Reedy Island and the city of Philadelphia, additional sanitary safeguards can be assured to the city of Philadelphia; therefore be it

Resolved, That it is the sense of this body that it is no longer necessary for the state of Pennsylvania to maintain a quarantine station at the port of Philadelphia, and that the discontinuance of the state control will result in a saving of state funds and an increased efficiency of quarantine function, and that this body recommends to the governor of the state of Pennsylvania that measures be taken to this end.

Dr. A. R. Allen, Carlisle, moved to lay the resolution on the table. Motion was seconded by Dr. L. H. Taylor, Wilkes-Barre. Motion was put to a vote and declared lost. Moved by Dr. Samuel Wolfe, Philadelphia, seconded by Dr. Gordon M. Christine, Philadelphia, that the resolution be referred to the Committee on Public Policy and Legislation. Motion carried.

On motion of Dr. Samuel Wolfe, Philadelphia, the action of the House, in referring the above resolution to the Committee on Public Policy and Legislation, was reconsidered, and on motion the resolution was referred to the Reference Committee on New Business.

Dr. Adolph Krebs, Pittsburgh, presented the following amendment to the by-laws, which was referred to the Committee on Society Comity and Policy:

Add to Section 1, of Chapter VIII, the following:

Provided, however, that no member of this Society shall be entitled to the benefits of this fund who was not a resident of the state of Pennsylvania when the alleged act of malpractice was committed.

Dr. John G. Wilson, Montrose, presented the following resolution which was referred to the Reference Committee on New Business:

Whereas, Twenty-seven states reciprocate with each other on the basis of a diploma from a Class A school and lawful registration before the formation of their respective state boards, and Pennsylvania makes no provision for reciprocity for its older practitioners; therefore be it

Resolved, By the Medical Society of the State of Pennsylvania, that the Bureau of Medical Education and Licensure be requested to arrange such reciprocity for the practitioners that registered before the formation of the state board.

On motion the House adjourned at 4:20 p. m., to meet this evening at 8 p. m.

Monday Evening, Sept. 18, 1916

The House of Delegates was called to order in the rooms of the Lackawanna County Medical Society, at 8:15 p. m., by President John B. McAlister, Harrisburg.

Roll call showed seventy-six delegates and four non-voting members present.

Dr. William L. Estes, South Bethlehem, presented the report of the Committee on Medical Education, which was referred to the Reference Committee on Scientific Business.

REPORT OF THE COMMITTEE ON MEDICAL EDUCATION

To the President and the House of Delegates:

The Committee on Medical Education of the Medical Society of the State of Pennsylvania met Sept. 22, 1915. It was determined to invite a member from each county medical society in the state to act as member of the committee.

On Jan. 12, 1916, the full committee was called to meet in Philadelphia. The following men were present and the committee was organized:

W. L. Estes, South Bethlehem; John B. McAllister, Harrisburg; and C. L. Stevens, Athens, the initial committee of the State Society.

Blair County—W. Albert Nason, Roaring Spring.
Bradford County—Donald Guthrie, Sayre.
Bucks County—John B. Carrell, Hatboro.
Cambria County—George W. Wagoner, Johnstown.
Carbon County—Alexander Armstrong, White Haven.
Chester County—William T. Sharpless, West Chester.
Clearfield County—Lever F. Stewart, Clearfield.
Cumberland County—Americus R. Allen, Carlisle.
Elk County—J. C. McAllister, Ridgway.
Franklin County—William Francis Skinner, Chambersburg.
Huntingdon County—Howard C. Frontz, Huntingdon.
Jefferson County—John H. Murray, Punxsutawney.
Lackawanna County—D. A. Webb, 310 Wyoming Avenue, Scranton.
Lehigh County—J. Treichler Butz, 304 North Ninth Street, Allentown.
Luzerne County—Lewis H. Taylor, 83 South Franklin Street, Wilkes-Barre.
Lycoming County—John A. Klump, 331 Elmira Street, Williamsport.
Mercer County—William M. Richardson, Mercer.
Monroe County—John H. Stearns, Delaware Water Gap.
Montour County—Hugh B. Meredith, Danville.
Northumberland County—Horatio W. Gass, Sunbury.
Philadelphia County—J. B. Roberts, 313 South Seventeenth Street, Philadelphia.
Schuylkill County—David Taggart, Frackville.
Susquehanna County—John G. Wilson, Montrose.
Tioga County—William A. Dewitt, Blossburg.
Venango County—George B. Jobson, Franklin.
Warren County—Harry W. Mitchell, Warren.

Dr. William Pepper of the Committee on Medical Education of the Philadelphia County Medical Society was present and was invited to join this committee.

The committee especially discussed and urged the advisability of the combination of the medical colleges in Philadelphia into one large institution, and the utilization of the efficient hospitals throughout the state for postgraduate teaching. Also the necessity for general postgraduate instruction was emphasized.

It was voted to have the work divided among four subcommittees, consisting of three members each, as follows:

a. Drs. Webb, Sharpless and Pepper, on Use of Large and Small Hospitals as Teaching Units, with Dr. Webb as chairman (when Dr. Webb left for the European War, Dr. Sharpless was asked to take his place as chairman).

b. Drs. Wagoner, Taylor and McAllister, on Under-Graduate Training and Study, with Dr. Wagoner as chairman.

c. Drs. Roberts, Carrell and Estes, on Postgraduate Study, with Dr. Roberts as chairman.

d. Drs. Armstrong, Stevens and Stearns, on Preparation for Study of Medicine, with Dr. Armstrong as chairman.

The subcommittees to which the several divisions of the work were entrusted actively prosecuted their work. As a result many county medical societies have become interested in postgraduate study. Already a number of the more efficient small hospitals in the interior of the state have expressed their willingness to undertake postgraduate and clinical instruction.

There are many practical difficulties in thoroughly establishing postgraduate teaching in the small hospitals. It will require a little time to overcome these. The work is, however, begun and there is reason to hope that hospitals which may be rated as efficient will all adopt clinical postgraduate instruction.

The committee is so strongly convinced of the great mutual educational value of this system to hospitals and physicians who wish to take postgraduate work, it asks the House of Delegates to consider the far-reaching possibilities for good in the system and to appoint a committee to take charge of the details for organizing the work on the basis suggested by the subcommittees.

The committee presents the reports of these four subcommittees in their entirety as the essence of its full report and requests for them the careful hearing of the House of Delegates.

It is great satisfaction to the committee that a union between the Medico-Chirurgical College and the University of Pennsylvania has already been consummated, and that a postgraduate department has been organized under Dr. Charles K. Mills. When Jefferson Medical College joins this union our state may boast of an eastern and western combination for medical education second to none in the country. The committee urges the state medical society to do all it is possible to do to bring about speedily this triple union of colleges.

Respectfully submitted for the committee,
William L. Estes, Chairman.

REPORT OF THE SUBCOMMITTEE ON USE OF LARGE AND SMALL HOSPITALS AS TEACHING UNITS

Dr. W. L. Estes, Chairman:

The Committee on Use of Large and Small Hospitals as Teaching Units reports that it was unfortunate on account of the fact that the chairman of the committee has been absent from the country on service with an ambulance corps in France during the greater part of the year. Some work has been done, however. Letters were written to all of the county medical societies in the state, explaining the ideas of the committee as to the use of the hospitals for postgraduate teaching, and asking the cooperation of the county societies in this work. Most of the societies addressed acknowledged the receipt of the letter and expressed approval of the project. Many of them appointed committees to report at a later date. The individual members of the committee addressed several of the county societies near their homes and explained what was sought to be accomplished by this movement. The committee soon found in the course of this work that it was covering the same ground exactly as another committee, namely, that on postgraduate study. The work of these two committees is so nearly parallel that they believe it would be a saving in work and a gain in efficiency if these two committees were combined into one.

This committee also believes it would produce better results if, instead of trying to interest the members of the State Society by letters from the committee, a general meeting were called in the near future and all of the hospitals of the state were invited to send to the meeting representatives authorized to arrange terms on which the hospitals could be used for the purpose sought by the committee.

Respectfully,
William T. Sharpless, Chairman pro tem.

REPORT OF THE SUBCOMMITTEE ON UNDERGRADUATE TRAINING AND STUDY

Dr. W. L. Estes, Chairman:

Your subcommittee respectfully submits the following report: The prospective medical student of Pennsylvania faces an enormous undertaking at the present day. A bare statement of it shows that it is prohibitive to a very large majority of ambitious youths: Four years in a high school, three years in a preparatory college, four years in a medical college, one year in a hospital; twelve years of his formation life, during which he is not a producer but an abnormal consumer, from the age of 14 to the age of 27; under modern methods of living and cost of education, a required expenditure of from $8,000 to $10,000. This is the barrier over which parents must boost their sons into the field of scientific medicine. Some questions are becoming insistent. Is all this necessary? Must general culture and scientific theory dominate useful, practical, helpful knowledge? Who finally succeeds in living a life of service, the uncertain, introspective, judicial theorist, or the active, practical man who possesses the fundamental knowledge which gives him confidence in his own ability to safely do things for the relief of humanity?

The wisest educators are arriving at the conclusion that the really important knowledge for a successful professional life can be acquired in a much shorter time than twelve years, and that a man thus qualified to meet the daily emergencies of sickness and accident is still able to explore the fields of speculative research and scientific theory. The development of unnecessary difficulties about the domain of medicine will lessen the number of those who can enter therein, but it will not lessen the demand by the people for help in their illness. This demand will be supplied. If it cannot be supplied by young medical men who have a safe knowledge of the profession, it will be supplied by those who acquire a legal standing as near doctors, through the many permitted medical fads and cults. Is the profession defeating its object by causing the pendulum to swing too far in the direction of scientific speculation and specialties? Can the profession not take a reasonable position that the necessary knowledge for permission to practice medicine can and should be attained by the industrious student during eight years? By so doing, the hopes of many families and ambitious young men and women would be realized; the public would be served by intelligent and safe practitioners, and the breed of legalized fakers be limited. These are the big questions which the profession and public ask the educators and teachers of medicine to solve.

G. W. Wagoner,
Lewis H. Taylor,
J. B. McAlister.

REPORT OF THE SUBCOMMITTEE ON POSTGRADUATE STUDY

Dr. William L. Estes, Chairman:

The Workmen's Compensation Act of Pennsylvania incidentally will improve the care of dispensary and ward patients at hospitals. It will induce system, accuracy, and correct records—matters long neglected in a good many small and not a few large institutions. Besides, it will prove to trustees and managers the unwise, even dangerous, character of the medical attention frequently given by recent graduates, inexperienced nurses and orderlies, and incompetent or careless staff physicians and surgeons. The supervision exercised now by the Bureau of Medical Education and Licensure has already exerted a similar salutary effect, by causing a realization on the part of hospital officers of what goes to make up a real modern hospital plant.

These two influences have made a clearer path for those medical graduates, young and old, who desire to complete or increase their mental or manual equipment for professional services to the public.

Postgraduate instruction will be readily obtained in the future at many points throughout Pennsylvania. Drilling in first aid, correct examination, accurate diagnosis, efficient treatment, and systematic records may soon be learned under many teachers, whose own efficiency in these matters will continue to increase through the demands of Pennsylvania's legal insistence on good medical care of its industrial diseases and injuries. Slipshod or negligent treatment is not likely to last long when employers who pay, and insurance companies which underwrite, have an interest in the rapid return to work of injured or ill employees.

The state agencies mentioned are certain gradually to obtain public recognition of their educational as well as their humanitarian value.

Dr. John G. Wilson of Montrose has well said in a recent letter, that the public welfare demands close supervision of the training of physicians, both before and after graduation; and that the state should endeavor to centralize all its hospitals and allied charitable institutions, so that they may be used as teaching centers, and at the same time be conducted in such a systematic and businesslike manner as will prevent waste and unneeded duplication.

Medical education must continue after a physician has received his medical degree and state license, if the public is to be properly cared for in illness and physical injury.

Review courses of study, termed postgraduate or polyclinic work, are required by all physicians at about five-year intervals.

True graduate work in the university sense is demanded for one who desires to become a consultant, a professional teacher of medicine, purely a specialist, or a research worker.

Provision for the first or more numerous class is to be given by teaching extending over from one to six months. It is mainly clinical in character, although in the specialties didactic teaching and literary study with the cultivation of manual dexterity are also requisite.

Those desiring to do real graduate work must be afforded a more intimate acquaintance with the newest theories, methods and discoveries; and they need training, mentally and otherwise, of the highest scientific character. The instruction should last two or three years, be proved by an examination and rewarded by a degree commensurate with the labor and the dignity of the scientific acquirement. Master or doctor of surgery, gynecology, ophthalmology, dermatology, public health, or the like, are titles that seem appropriate.

Such titles or distinctions are now coming into vogue in America, England, and Continental Europe. They deserve to be recognized as an integral part of the medical life.

In both of these forms of study, efficient teachers and abundant laboratory and hospital facilities are needed. Cooperation of hospital trustees must be obtained to open all hospitals to ward and dispensary usefulness in teaching. Members of medical staffs should be assured of reasonable permanency and some remuneration for teaching; and must be obliged to give efficient time to care for the patients properly. It is doubtful whether either of these objects can be obtained without paying salaries to physicians and surgeons in both wards and dispensaries. Observation through medical eyes pretty well proves that distinguished private practitioners not infrequently neglect hospital service or delegate it to subordinates. Better service to patients and better instruction to interns and pupil physicians will often be better rendered by men of less reputation. Teaching ability, love of the job, and a strong conscientious spirit are the real seeds of success. Nowadays a well organized hospital will probably have to employ at least one or two salaried resident physicians or interns. Cheap labor in this domain is almost worthless. The short yearly term of the usual hospital intern, his inexperience, his boyish headstrongness and lack of official dignity make his outgo often more agreeable than his advent. Control of these young men can probably be secured by adding a salary to the usual consideration of board, lodging and experience.

Postgraduate study may be given not only to those recent graduates but also to older graduates by admitting to "temporary" or "voluntary" internships graduates of three or five years standing. Such pupil physicians should pay a fee for the privilege. In a similar way, graduates of even longer standing should be accepted in polyclinic schools as pupil physicians, allowed to act as first and second assistants. In cases of long pupilage with didactic, cadaveric and laboratory work, they should be allowed to operate under the eyes of the teacher. Judgment, initiative, and resourcefulness are thus cultivated.

A graduate or postgraduate school could enlarge its facilities by awarding prizes or teaching fellowships with salaries, by arranging for pupils to travel to distant medical centers for observation and study of the methods of special authorities, and by establishing extension courses in other than its own city where teachers of its corps could act as visiting lecturers, operators or diagnosticians. It could, as is done in North Carolina, establish circuits for medical instruction, by which physicians of several localities could each, on the same day of ten or fifteen successive weeks, receive valuable practical teaching at a selected hospital.

In graduate schools provision and grants of money must be available for research work and experimental investigation. Allied sciences must be represented in the institution so that all branches of science can be brought to bear on the problems arising. Hence a graduate school must almost necessarily be a department of a university plant.

Medical societies must cooperate in the postgraduate movement by securing good programs with previously selected speakers for discussion of the topics introduced by the essayists. They can organize study classes and stimulate hospital men to give clinics and accept pupil physicians in ward, laboratory, and operative room work.

Much good teaching can be done in the small rural and suburban hospitals. The large hospital clinics, such as those held at Western Pennsylvania Hospital in Pittsburgh and at the Philadelphia General Hospital, the German Hospital, and the Pennsylvania Hospital in Philadelphia, have long carried on clinical teaching.

The Hospital Clinic Society of this state, to which some members belong, is occupied with similar efforts. Dr. J. T. Schell of Philadelphia has said that there are 1,569 beds in the smaller hospitals of that city that might be used for teaching.

The Bulletin of Surgical Clinics, issued daily by the Philadelphia Academy of Surgery, should be supplemented by a bulletin of medical clinics issued by the county medical society or some other organization. The Polyclinic Extension Committee of the State Medical Society should be revived and made active in the work.

The "Clinico-Pathological Course by Mail for Practitioners," which is fathered by Dr. Richard C. Cabot and published by the Massachusetts General Hospital, points out another method of bringing medical information to the inquiring doctor.

J. B. Carrell,
W. L. Estes.

REPORT OF THE SUBCOMMITTEE ON PREPARATION FOR STUDY OF MEDICINE

Dr. W. L. Estes, Chairman:

The following is the report of the subcommittee appointed to consider the subject of preparation for the study of medicine: This committee considers that the question of preparation from an academic standpoint is fully covered by the entrance requirements of the various medical schools and also by the laws of the licensure boards of each state.

The following recommendations are presented with the idea of emulating and improving the preceptor plan which was in vogue for so many years and which the student of today sadly misses: (1) Let the practitioner take an active interest in the prospective student. Invite him to walk the wards of the hospital, assist in laboratory and in the dressing of cases in dispensary. (2) Invite him to the county medical society meetings where he can observe successful doctors.

This would necessitate considerable effort on the part of our members in the two large cities, Philadelphia and Pittsburgh, but, by inviting a contingent of the senior classes every month, the matter could be arranged. Students from this state who are home frequently could be taken care of by the members in their several localities.

Alex. Armstrong, Chairman,
C. L. Stevens,
J. H. Stearns.

Dr. William A. Womer, New Castle: It is with great sorrow that I have to announce the untimely death of the president of the Lawrence County Medical Society, Dr. Floyd L. Van Wert, New Castle. Dr. Van Wert was struck by a train and killed today a short distance from New Castle. He was one of our most promising young men and it certainly casts a great shadow on our Society.

It was regularly moved, seconded and carried that a committee be appointed to draft a set of resolutions on the death of Dr. Van Wert, and that they be spread on the minutes of the Society and one set forwarded to the family of Dr. Van Wert.

The following report of Dr. James Johnston, Bradford, councilor for the Eighth District, was read by the Assistant Secretary, and referred to the Reference Committee on Reports of Officers and Committees:

Report of Councilor for the Eighth District

To the President and House of Delegates:

From the Eighth District the councilor begs to report that in the six counties represented there has been no case of alleged malpractice.

Peace and harmony have characterized this remote corner of the state, possibly too much of it. The only well-attended meetings have been those called to discuss the Workmen's Compensation Act and its practical workings and needed repairs. But this excitement died down when it became known that the Act is but a one cylinder affair which is not expected to be perfect and complete but will be added to as experience and education shall direct.

The membership in all of our societies stands about as it was and generally represents nearly all of the desirable practitioners in the different counties.

The scientific center of this district is Warren. At the State Hospital in this county the Warren County Society holds an annual meeting to which members of surrounding societies are invited. This means a delightful auto ride, an excellent lunch, a good cigar and a well-arranged program. Here we hear the latest if not the last word on the different subjects discussed and we go away with something new to think about and something different to follow out in practice.

The hospitals in this district have profited very much from the activities of Dr. Baldy of the Bureau of Medical Education and Licensure. Excellent laboratories are being installed where there were none before, and practical Roentgen-ray equipments are now made available in many small cities.

There has been no request made to act as peacemaker anywhere during the year and no disturbance to quell. The duties of your councilor in the northeastern counties have been very easy and very pleasant.

The minutes of the afternoon meeting of the House were read, corrected and approved.

Dr. William L. Estes presented a communication from the Council on Medical Education of the American Medical Association regarding the chartering of educational institutions and the right to revoke the charter of any institution which is not being conducted in an honorable manner and for a proper purpose. On motion the communication was referred to the Committee on Public Policy and Legislation.

The report of the Committee on Promotion of Efficient Laws on Insanity was read by the assistant secretary and referred to the Reference Committee on Reports of Officers and Committees.

Report of Committee on Promotion of Efficient Laws on Insanity

To the President and House of Delegates:

Since the last meeting of the Medical Society of the State of Pennsylvania the legislature has not been in session. Hence, the committee has had no opportunity to influence legislation in the interests of the insane. At the last meeting of your Society a resolution was passed endorsing the principle of "state care" for all the insane.

The governor directed the State Board of Charities to report to him six months before the next regular session of the legislature, a plan whereby the commonwealth can support and care for all its dependent insane in institutions owned and controlled by it.

While the State Board of Charities has not as yet committed itself as a body to the policy, the only medical member of the board, Dr. John A. Lichty, has presented in pamphlet form a strong appeal for state care.

In furtherance of the scheme for state care, the subject will be discussed at this meeting in a paper to be presented by Dr. Charles W. Burr.

In cooperation with the Public Charities Association the committee will use every means of impressing on the legislature the need of a comprehensive plan for state care and will lay emphasis especially on the shortcomings of the county asylums, where in many instances, the insane receive nothing but custodial care.

The committee recommends to the House of Delegates the unqualified endorsement of the position which Dr. John A. Lichty of the State Board of Charities has taken, to wit:

"First, I stand for state care of the insane, for it has been demonstrated that the custodial care of the insane is better in the state institutions than in the county institutions.

"Second, the prospect for proper scientific care and treatment of the insane is better in the state institutions than in the county institutions.

"Third, the change can be brought about gradually by continuing the erection of state institutions on the same lines as our present institutions, and by asking the cities of Philadelphia and Pittsburgh, and the medical schools and universities there, to cooperate in building, equipping and manning suitable psychopathic hospitals.

"Fourth, the State Board of Charities and the Committee on Lunacy must make known the needs of the indigent insane, and must stand for the needs of these dependents without compromise."

The committee urgently petitions the House of Delegates as a body and individually to bring their influence to bear on their senators and representatives in favor of better facilities and genuine scientific treatment for the insane.

Respectfully submitted,
Lawrence Litchfield,
William K. Walker,
Charles H. Frazier.

Dr. Edward B. Heckel, Pittsburgh, offered the following amendment to the constitution, which was referred to the Committee on Society Comity and Policy:

Amend Section 2, of Article IX, by substituting for the third sentence the following:

The terms of the Trustees shall be three years; three of whom shall be elected annually; no one, however, shall be eligible to succeed himself after he has served two full consecutive terms.

On motion the House adjourned until 9 a. m., Wednesday, September 20.

John B. McAlister, President,
C. L. Stevens, Secretary.

Wednesday Morning, Sept. 20, 1916

The House of Delegates was called to order in the rooms of the Lackawanna County Medical Society at 9:15 a. m., by President Charles A. E. Codman, Philadelphia.

The minutes of the meeting held Monday evening, September 18, were read, corrected and approved.

Roll call showed 105 delegates and five nonvoting members present.

The election of officers being the order of the day, the following members were placed in nomination for President-Elect: Drs. Samuel G. Dixon, Bryn Mawr; John B. Carrell, Hatboro; Lawrence Litchfield, Pittsburgh. The chair appointed Drs. A. R. Allen, Carlisle, and George C. Johnston, Pittsburgh, as inspectors, and the Secretary requested Dr. Christian B. Longenecker, Philadelphia, to assist in keeping a duplicate tally. Ballot resulted in the election of Dr. Samuel G. Dixon, Bryn Mawr. On motion of Dr. William H. Walsh, Philadelphia, seconded by Dr. Joseph K. Weaver, Norristown, the election of Dr. Dixon was made unanimous and he was declared elected to the office of President-Elect for the ensuing year.

Drs. John B. Corser, Scranton; Joseph W. Albright, Muncy; J. Treichler Butz, Allentown, and Herbert B. Gibby, Wilkes-Barre, were nominated and elected as First, Second, Third and Fourth Vice Presidents respectively.

Drs. Cyrus Lee Stevens, Athens; Clarence P. Franklin, Philadelphia, and George W. Wagoner, Johnstown, were, on separate ballots, unanimously elected Secretary, Assistant Secretary and Treasurer respectively.

The chair announced three vacancies for Trustees, one in the second, one in the fourth and one in the sixth Councilor District. Dr. Theodore B. Appel, Lancaster, was unanimously elected as his own successor in the Second District. Dr. Horatio W. Gass, Sunbury, was unanimously elected as his own successor in the Fourth District. For the Sixth District Drs. William W. Lazarus, Tunkhannock, and Donald Guthrie, Sayre, were placed in nomination. A ballot was taken and the tellers announced a tie vote. On the second ballot the tellers announced that Dr. Lazarus had received a majority of the votes cast, and the President declared Dr. Lazarus elected Trustee for three years.

On motion of Dr. Edward B. Heckel, Pittsburgh, Dr. Robert W. Brady, Honesdale, president of the Wayne County Medical Society, was seated as a member of the House of Delegates, he having just arrived.

Drs. John D. McLean, Philadelphia; Edward B. Heckel, Pittsburgh; David N. Dennis, Erie, and C. L. Stevens, Athens, were, on ballot, duly elected Members of the House of Delegates of the American Medical Association for the term ending 1918. Drs. George W. Wagoner, Johnstown; Samuel J. Waterworth, Clearfield; Harry L. Whitney, Plymouth, and Luther B. Kline, Catawissa, were, on ballot, duly elected Alternates Designate for the term ending in 1918. The following members were, on ballot, duly elected Alternates-at-Large for the term ending in 1918: Drs. Gordon M. Christine, Philadelphia; Jesse R. Cooper, New Castle; Theodore P. Simpson, Beaver Falls, and Lewis H. Taylor, Wilkes-Barre.

Dr. Edward B. Heckel, Pittsburgh, on behalf of the Allegheny County Medical Society, invited the Medical Society of the State of Pennsylvania to hold its 1917 session in Pittsburgh, and the invitation was accepted by the House.

Dr. Theodore B. Appel, Lancaster, offered the following resolution which was referred to the Reference Committee on New Business:

Resolved, That, the legislature of 1915 having failed to make an appropriation for the Pennsylvania Village for Feebleminded Women, the board of managers having completed one cottage on the site in Union County, from funds of the first appropriation, and are unable to go on on account of lack of funds, we again urge on the coming legislature to give this undertaking generous support and that our Committee on Public Policy and Legislation be instructed to urge the same.

Dr. William D. Robinson, Philadelphia, a member of the House and chairman of the committee of the Pediatric Society of Philadelphia County, presented a request from that society endorsed by seventeen members of the State Society, asking the Medical Society of the State of Pennsylvania to form a Section on Pediatrics, and the request was referred to the Reference Committee on New Business.

Dr. Lewis H. Taylor, Wilkes-Barre, on behalf of the Committee on Health and Public Instruction presented the following resolutions which were referred to the Reference Committee on Reports of Officers and Committees:

Whereas, The commonwealth of Pennsylvania maintains an advanced position on all matters pertaining to public health and wholesome foods except milk hygiene, and

Whereas, Extensive investigations by federal, state and municipal authorities have shown dangerously insanitary conditions to exist on many dairy farms and in connection with the handling of milk and milk food products by creameries and other milk dealers within the commonwealth and in neighboring states which transport their products into our commonwealth, and

Whereas, There is no state law which can be invoked to abolish these undesirable and dangerous conditions, therefore be it

Resolved, That the Medical Society of the State of Pennsylvania recommend to the incoming general assembly of the state the adoption and passage of an adequate milk hygiene bill which shall embrace reasonable sanitary requirements covering the production and handling of milk and milk food products within this commonwealth, and that those products from other states intended for distribution within this commonwealth shall conform to the same requirements, and be it further

Resolved, That one of the efficiently organized departments of the state government shall be charged with the enforcement of the milk hygiene act in all places beyond the corporate limits of any city, borough or township of the first class, and that the municipal authorities shall have jurisdiction over the production, handling and distribution of milk and milk products within corporate limits.

Dr. John Montgomery Baldy, Philadelphia, presented by request the following resolution, which was referred to the Reference Committee on Scientific Business:

Whereas, Contrary to the generally accepted belief that alcohol possesses unlimited medicinal properties and most excellent virtues as a stimulant, modern scientific research has thoroughly demonstrated that it has little or no value, either as a medicine or a stimulant, but it is a very dangerous narcotic poison, which taken in quantities tends to destroy body and mind, therefore be it

Resolved, That in order to better safeguard health and happiness, and to successfully treat the disabilities and alleviate the growing burdens developed from the use of alcohol, the saloon must be closed or made to suffer such isolation as is legally imposed by quarantine on places infected with contagious diseases, and that the sale of alcoholic liquors as a beverage must be prohibited, and the use thereof denied to persons with morbid appetites in the same manner as drugs containing opiates are now forbidden by law.

Dr. Wilmer Krusen, chairman of the Reference Committee on Reports of Officers and Committees, presented the following report, which on motion was formally adopted in its entirety by the House of Delegates:

The Reference Committee on Reports of Officers and Committees congratulates the Board of Trustees on the satisfactory condition of finances and urges the Society to influence the several standing committees to send to them the required detailed reports requested in order that the proper budgets may be prepared. It recommends the publication of the Journal for two years longer under the same arrangements as at present. We also recommend that their proposed amendments to the Workmen's Compensation Law be referred with approval to the Committee on Public Policy and Legislation.

We also recommend that the report of the Committee on Promotion of Efficient Laws on Insanity be referred to the same committee for their careful consideration.

The committee also congratulates Dr. James Johnston, the councilor of the Eighth District, on his report and particularly commends the work of Dr. Baldy for the establishment of excellent laboratories and the general improvement of hospitals through the state.

We also note in the reports of the councilors that that they have found considerable dissatisfaction with the Workmen's Compensation Act, and recommend that their reports be submitted to the Committee on Public Policy and Legislation.

We commend most heartily the Committee on Medical Benevolence, realizing that prosperous physicians should always be mindful of the needs of the less fortunate brothers. We recommend that the suggestion of President Codman, that this fund be increased, should receive serious consideration.

We approve of the state care of the insane, more especially in the counties where they are unable to care for them in the manner that they should. If a city or a county has a well-equipped asylum for the care of the insane, it should be encouraged and maintained under state supervision and inspection.

It is a matter of regret that the Commission on Medical Expert Testimony has not come to any conclusion and has not submitted any draft of a law, defining the method of presenting expert medical testimony. We trust in another year they may present a definite plan whereby medical testimony may be presented in a dignified manner and the physician not be compelled to give an exhibition of mendacity and monumental asininity because of heckling cross examiners.

Your committee has reviewed with interest the President's Address. We recommend most heartily that the Medical Society of the State of Pennsylvania work in unison with all licensed practitioners in securing the legislation necessary for public health and especially urge the individual members to keep in close touch with the members of the state legislature.

We endorse the recommendation that the Society should establish an endowment fund which should be annually increased for the benefit of the Society.

We also approve that a Committee on Archives be appointed to write a suitable history of the Society.

We believe that it is wise to hold public meetings for the education of the laity.

As the medical profession has always been patriotic and altruistic, we emphasize the value of the medical societies organizing units for the encouragement of national medical preparedness.

Wilmer Krusen, Chairman,
Edward Lyon,
Frank P. Lytle.

Dr. Clarence R. Phillips, Harrisburg, chairman of the Reference Committee on Scientific Business, presented the following report, which on motion was adopted in full by the House of Delegates:

Your Reference Committee on Scientific Business reports as follows:

We return with negative recommendation the resolution presented by Dr. John G. Wilson with reference to the care, custody and education of children stricken with infantile paralysis.

We are in hearty accord with the sentiment expressed in the comprehensive reports of the Committee on Medical Education, and report favorably on their suggestion that a committee be appointed to carry out the details requisite to the proper utilization of the efficient hospitals throughout the state for postgraduate teaching. We concur with their recommendation for general postgraduate study.

C. R. Phillips, Chairman,
Alexander Armstrong,
George C. Johnston.

Dr. John D. McLean, Philadelphia, chairman of the Reference Committee on New Business, reported as follows:

1. That the resolution introduced on Monday afternoon by Dr. John G. Wilson, regarding medical reciprocity, be referred to the State Bureau of Medical Education and Licensure, with the request that

Dr. Wilson furnish to the Bureau all the data in his possession.

2. That the president be instructed to appoint two delegates to the Third North Atlantic Tuberculosis Conference to be held in Newark, N. J., Oct. 20-21, 1916.

On motion of Dr. Edward B. Heckel, Pittsburgh, duly seconded, these separate recommendations were adopted by the House of Delegates.

Dr. William P. Burdick, Kane, for the Reference Committee on New Business, presented the following memorial on the death of Dr. Floyd L. Van Wert, president of the Lawrence County Medical Society, prepared under the resolution introduced into the House Monday evening, which was unanimously adopted by a silent rising vote:

Whereas, An all-wise Providence has removed from our midst one of our members, Dr. Floyd Lee Van Wert, president of the Lawrence County Medical Society, and

Whereas, We realize that we have sustained a loss in the removal of a young man of such worth and promise, and

Whereas, We realize the untimely bereavement suffered by the parents and the young wife, therefore be it

Resolved, That the Medical Society of the State of Pennsylvania in convention assembled extend to the bereaved family and the Lawrence County Medical Society its sincere expression of condolence and that a copy of these resolutions be spread on the minutes of the Society.

The chair announced the order of business to be the election of District Censors, and Dr. I. J. Moyer, Pittsburgh, councilor for the Seventh District, called attention to the fact that the nominee presented by Washington County is in poor health and not now physically able to attend to the important business awaiting the action of the censors of the Eighth Censorial District. He therefore nominated Dr. H. J. Repman, Charleroi, for Washington County. On motion of Dr. T. B. Appel, Lancaster, the Secretary was instructed to cast the ballot of the House for the nominees. This was done and the district censor for each county was duly elected. (See list of officers on succeeding page of this issue.)

Dr. Lewis H. Taylor, Wilkes-Barre, chairman of the Committee on Society Comity and Policy, presented the following report, which, on separate motions, was adopted in its entirety:

Report of Committee on Society Comity and Policy

To the President and the House of Delegates:

No meeting of the Committee on Society Comity and Policy was held during the past year as the matters coming before it could be managed by correspondence, and at this session, and it was therefore deemed advisable to avoid expense to the Society.

We recommend the passage of both amendments proposed last year and printed in the program.

We also recommend the passage by unanimous consent of the amendment regarding medical defense proposed on Monday by Dr. Adolph Krebs, Pittsburgh, in order that it may become effectual at once.

We recommend that the amendment regarding term of trustees proposed by Dr. Heckel take the usual course and lie over for one year.

We ask for an appropriation of $50 for the use of the committee if needed for another year.

Respectfully submitted,
Lewis H. Taylor, Chairman,
C. L. Stevens.

Dr. C. R. Phillips, Harrisburg, chairman of the Reference Committee on Scientific Business, made a supplementary report containing a negative recommendation on the resolution on alcohol, presented by request this morning. On motion the recommendation of the committee was adopted.

Dr. John D. McLean, Philadelphia, chairman of the Reference Committee on New Business, presented a supplementary report, recommending the adoption of the resolution on the Pennsylvania Village for Feebleminded Women, presented by Dr. Appel.

The Secretary read the report of the Committee on Health and Public Instruction, which he had just received, and the report was referred to the Reference Committee on Reports of Officers and Committees.

Report of Committee on Health and Public Instruction

To the President and the House of Delegates:

As the state department of health is issuing weekly health bulletins, which are very popular and of great value to the people, it did not seem advisable to expend any of our funds in publishing other literature in the daily press.

We have been especially impressed with the necessity of improving the milk supply in Pennsylvania. It is not generally known that there is no state law to protect our children from unwholesome milk. The best part of milk produced in northeastern Pennsylvania goes to New York City in refrigerator cars in compliance with the strict regulations of the New York City Board of Health. The inferior supply, without any supervision, is shipped to cities and towns in Pennsylvania. At the present time milk legislation of any kind, either municipal or state, is very unpopular and receives but little support and is usually opposed by all branches of the dairy industry for economic reasons. The Society must do something to remove this opposition before the proper laws can be passed. In general, the consumers seem to be very indifferent to any efforts on the part of health officials to improve conditions, and the public should be educated to demand the proper supervision of their milk supply.

Through the cooperation of the Committee on Scientific Work we have secured Dr. Louis A. Klein, dean of the School of Veterinary Medicine, to read a paper on "What Can Be Done to Improve the Milk Supply in Pennsylvania?" before the general meeting on Wednesday morning. The paper will be discussed by Dr. Harry B. Burns, Pittsburgh; Dr. W. S. Gimper, Harrisburg, and Dr. Theodore B. Appel, Lancaster.

It is to be hoped that this paper and the discussion will arouse enthusiasm and interest, and that something definite can be accomplished in this work in the near future. We submit herewith report of the Commission on Cancer.

James C. May,
Elizabeth Leiper Martin,
Samuel C. Smith,
Harry H. Whitcomb,
Charles H. Miner.

REPORT OF COMMISSION ON CANCER

The commission has felt that its active campaigns of the past few years have carried matters as far as was judicious for a time and deemed it best to allow a brief lull in their activities. No formal meeting has been held and no expense has been incurred. Beyond keeping track of the work of other agencies and cooperating with them when occasion offered, nothing has been done.

Plans are now formed for spreading cancer education through women's clubs during the coming winter and it is hoped that a commission will be named again for the coming year to carry on this work.

We cannot close without adding our tribute to one who has been a member of this commission from its first beginning, Dr. William L. Rodman. Dr. Rodman has always been one of the most interested, active and influential members of this commission and his sound counsel and earnestness of purpose have been a very large factor in whatever success this commission may have accomplished. We mourn the loss of a tireless co-worker, a brilliant inspiration and a genial, beloved friend.

JAMES I. JOHNSTON,
DONALD GUTHRIE,
E. A. WEISS,
J. M. WAINWRIGHT,
J. E. SWEET.

On motion the House adjourned to meet this afternoon at 2:30.

WEDNESDAY AFTERNOON, SEPT. 20, 1916

The House of Delegates was called to order in the rooms of the Lackawanna County Medical Society at 2:40 p. m., by the president, Dr. Charles A. E. Codman. The Secretary announced a quorum present and on motion the roll call was dispensed with.

The President called on Dr. John D. McLean, Philadelphia, chairman of the Reference Committee on New Business, to present that part of the report of his committee relating to the resolution on port quarantine. The reference committee recommended that a committee of three be appointed by the President with instructions carefully to study this subject, and if an act abolishing state quarantine at the port of Philadelphia is presented to the next legislature at Harrisburg, the action of this special committee be considered the action of the Medical Society of the State of Pennsylvania, this committee to report at the next annual session.

On motion of Dr. Frank G. Hartman, Lancaster, seconded by Dr. R. P. Taylor, Wilkes-Barre, the recommendation of the reference committee was adopted by the House.

The minutes of the morning meeting were read, corrected and approved.

Dr. John D. McLean, Philadelphia, chairman of the Reference Committee on New Business, presented the report of his committee with the following recommendations:

1. That the House of Delegates endorse the tentative draft of a health insurance act, prepared by the American Association for Labor Legislation, and that the Committee on Public Policy and Legislation be instructed carefully to watch all legislation on this subject.

2. That a committee on social insurance be appointed as recommended by the American Medical Association, and that it be the Committee on Public Policy and Legislation.

3. That the request for the establishment of a Section on Pediatrics be referred to the Board of Trustees with instructions to report to the House of Delegates at the next annual session.

4. That the resolution from the Allegheny County Medical Society regarding the commitment of the insane be referred to the Committee on Public Policy and Legislation, with instructions to confer with the State Committee on Lunacy. This recommendation is made because the subject of the commitment of the insane is adequately provided for by present laws devised to meet existing joint care of the insane by counties and state, and the consideration of the subject can be deferred until the result of present efforts to make state-wide changes in the care of the insane be decided.

On motion of Dr. William D. Robinson, Philadelphia, the four recommendations of the reference committee were adopted by the House.

In discussing this report Dr. I. J. Moyer, Pittsburgh, said:

"I agree to the report which the committee have presented. I have a little something to say and I wish to say it and then I am through.

"I consider it my duty to warn the members of the Medical Society of the State of Pennsylvania against indiscriminately signing commitment papers because of the difficulties which we encounter in so doing. I would advise you not to sign any papers committing the insane unless you have the evidence and the facts clearly stated and recorded so that these facts in evidence may be presented to the judge of any court, or if necessary, presented to the jury.

"I have presented this subject in various ways: First, in the Bulletin of the Allegheny County Medical Society in May, 1916, which was republished in THE PENNSYLVANIA MEDICAL JOURNAL and in the *Weekly Roster,* Philadelphia, in June, and again in the *Westmoreland Society Bulletin* in July, 1916.

"The conclusions of the councilor of the Seventh District are expressed also in his report to the State Society. There is an effort being made, as you have heard, to have the state take control of the insane, in which I heartily agree. After the establishment of this a careful consideration of the whole matter will be very beneficial to all parties concerned."

Dr. Wilmer Krusen, chairman of the Reference Committee on Reports of Officers and Committees, submitted the following recommendations, which on motion of Dr. E. B. Heckel, Pittsburgh, were adopted by the House.

Your committee recommends that the resolution presented by the Committee on Health and Public Instruction, in regard to the adoption of an adequate milk hygiene bill, be approved.

We also recommend that the Commission on Cancer be named to carry on the work of this commission and that their plans for spreading cancer education through women's clubs be further extended by appropriate and carefully prepared articles in the public press.

Dr. Theodore B. Appel, Lancaster, for the Trustees, presented the report of the Auditing Committee, which on motion of Dr. Wilmer Krusen was accepted and ordered printed in the minutes.

Report of Auditing Committee

Scranton, Pa., Sept. 19, 1916.

The Medical Society of the State of Pennsylvania, in Session at Scranton:

Gentlemen: In accordance with the instructions of your committee I have audited the books of your Secretary, Dr. C. L. Stevens, and your Treasurer, Dr. G. W. Wagoner, from Sept. 1, 1915, to Aug. 31, 1916.

All receipts for dues, etc., from the county societies recorded in the Secretary's cash book were found to be in agreement with the amount received by the Treasurer.

Receipts as recorded in the Treasurer's book are in agreement with the bank books. All expenditures by the Treasurer were by check accompanied by an order drawn on him and signed by the President and Secretary, together with vouchers for same duly approved and receipted.

I have verified the securities held by the Treasurer as shown by his books, also the bank balances in the general fund, the medical benevolence fund and the medical defense fund with the bank pass book balances of said funds.

The statement of your Treasurer for the fiscal year ending Aug. 31, 1916, a copy of which is hereto attached, is in accord with his books and has been duly verified.

Respectfully submitted,
John G. Sherwood,
Public Accountant and Auditor.

Approved { J. B. Lowman,
F. L. Van Sickle,
I. J. Moyer,
Committee.

Dr. Adolph Krebs, Pittsburgh, presented the following resolution, which was referred to the Reference Committee on New Business:

Resolved, That in the interest of economy the letter heads of the Society be printed in one form only, this form to be used by the various officers, sections and committees.

Dr. George A. Knowles, Philadelphia, moved that a suitable gavel be purchased and engraved, to be presented to the retiring President, Dr. John B. McAlister, Harrisburg. Motion was seconded and carried and referred by the President to the Board of Trustees.

Dr. John D. McLean, Philadelphia, chairman of the Reference Committee on New Business, recommended for the reference committee that the resolution of Dr. Krebs, regarding uniform stationery, be referred to the Board of Trustees. On motion of Dr. Knowles the recommendation was adopted.

Dr. William P. Burdick, Kane, for the Reference Committee on New Business, presented the following resolution, which on motion was unanimously adopted by the House.

Because of a full appreciation of the services rendered and favors extended, the Reference Committee on New Business desires to present the following resolution:

Resolved, That the Medical Society of the State of Pennsylvania extend its sincere thanks to all members of the Lackawanna County Medical Society, and especially to its committee on entertainment, for their untiring efforts in our behalf. Because of the way in which we have been taken care of we are fully convinced that they have made the most of their opportunities.

To Dr. William H. Cameron we are deeply grateful for his admirable arrangement and conduct of exhibits; also to the exhibitors whose display has in no wise suffered in comparison with former exhibits of the kind, and it is further

Resolved, That the Medical Society of the State of Pennsylvania extend its hearty appreciation and thanks to the out-going president, Dr. McAlister, for his efficient administration and diligent efforts for the advancement of the Society's best interests, and to all the officers and chairmen of committees for their labors and intelligent and comprehensive reports of the session's transactions in the public press, and further that the thanks of the Society be tendered Dr. Harry W. Albertson for his very efficient service and untiring efforts as chairman of the Committee on Arrangements, and to the ladies of Scranton for the numerous courtesies and warm hospitalities extended to the ladies of the members of the Society.

John D. McLean,
Ira G. Shoemaker,
W. P. Burdick.

Dr. Edward B. Heckel, Pittsburgh, moved that the House of Delegates of the Sixty-Sixth Annual Session of the Medical Society of the State of Pennsylvania adjourn sine die. Motion seconded and carried.

Charles A. E. Codman, President,
C. L. Stevens, Secretary.

MINUTES OF THE GENERAL MEETINGS

Tuesday Morning, Sept. 19, 1916

The Sixty-Sixth Annual Session of the Medical Society of the State of Pennsylvania was called to order in General Meeting at 10:10 a. m., Tuesday, Sept. 19, in the Ball Room of the Hotel Casey, Scranton, by the President, Dr. John B. McAlister of Harrisburg.

PRAYER BY RT. REV. BISHOP M. J. HOBAN,

BISHOP OF SCRANTON

Almighty and eternal Father, who by the mouth of Thy preacher hast said: Honor the physician for the need thou hast of him, for the Most High has created him. For all healing is from God. The skill of the physician shall lift up his head and in the sight of great men he shall be praised. We thank Thee and we praise Thee for having inspired these learned men here present, and those whom they represent, to dedicate their lives to the service of their suffering fellow creatures. We beseech Thee to bless them, and to render their discussions fruitful to the alleviation of the ills of men. Direct their actions by Thy holy grace and enlighten them to do that which is right in Thy sight. Comfort them in their own sorrows and afflictions, who have so often comforted others. And when the angel of death shall overshadow them with his wings, remember not their offenses, but rather the good deeds they have wrought unto others, and receive them into Thy bosom. Amen.

Address of Welcome

BY MR. ROBERT SILVERSTEIN, REPRESENTATIVE OF THE MAYOR OF SCRANTON

Mr. President and Members of the State Medical Society: I regret very much that Mayor Jermyn is unable to be here this morning, but I want to extend to you on his behalf a most cordial welcome and to assure you that the citizens of Scranton are especially honored in welcoming so distinguished a gathering as is represented here this morning and that they are proud that you have selected Scranton as your meeting place this year. The influence of the medical profession and the beneficent work which the physician is daily doing in the relief of mental and physical affliction need no eulogy that I might offer. The voice of humanity has given eloquent expression of its appreciation of the noble work of the medical profession in curing disease and of the nobler work of its prevention. I may, however, offer this sentiment, if you will: Whenever we pick up a newspaper or a magazine we are confronted with the tragedy being enacted in Europe. It seems as though civilization had lost its pathway on the march of civilization; as though man had lost his finer instincts and were bent solely on the slaughter of his fellowman; as though the all in all in Europe were the destruction of life. We ask ourselves, Is civilization going backward? and we are tempted to answer affirmatively, until we read of the noble, the unselfish work that the physician is doing daily on the battlefield of Europe. When we realize this we answer that although civilization may have received a blow, it is yet on the onward march, that these examples of love, devotion and sympathy are the harbingers of that age so beautifully predicted by the great Teacher of "Peace on earth and good will toward men."

May I give expression to another sentiment: The people of Pennsylvania owe a debt of gratitude to your organization. You have fought for a higher standard of medical scholarship and your efforts have been crowned with success. The laws of Pennsylvania require today that no man be permitted to pursue a medical course unless he has received first one year at least of collegiate training in such sciences as physics, chemistry and biology and that no man shall be allowed to practice medicine unless he has served one year as intern in a recognized hospital. A higher standard of scholarship in medicine means a higher-grade physician and a high-grade physician must prove of incalculable benefit to the state. The best investment that any state can make is a good doctor, for every competent physician helps to reduce not only the size and cost of hospitals and number of poor-houses, but to postpone the filling up of our cemeteries.

I want to take this opportunity, my friends, to extend the thanks of the citizens of Scranton to our local physicians who have cooperated unselfishly and whole-heartedly with the municipal authorities in coping with the recent epidemic of infantile paralysis and who have not only helped our city to escape the ravages of this disease but to maintain its high standard of health conditions.

But, my friends, I am not here to make a speech. My desire is merely to extend to you a cordial welcome, and I do so whole-heartedly. I sincerely hope that you will spare enough time from the business of your convention to explore our city of Scranton. Scranton is not merely a mining center, so often pictured; it is an industrial, an educational, a manufacturing center as well, and you will do well to become familiar with our city. I need not tell you that while you are here the city of Scranton is yours. I dare say in all sincerity that when you return to your homes Scranton will be better because of your stay among us.

President McAlister: The Society appreciates the cordial welcome coming from his Honor, the Mayor, and I am sure that during our short stay we shall learn much of a city so well conducted and so well managed as is the city of Scranton.

Address of Welcome

BY DR. REED BURNS, VICE PRESIDENT OF THE LACKAWANNA COUNTY MEDICAL SOCIETY

Mr. President and Members of the Society: In the absence of Dr. Webb, our president, who is caring for the wounded in Europe, it falls to my lot to make the Address of Welcome. I regret very much that Dr. Webb is not with us, for he is a gentleman, a fine speaker, and a surgeon of marked ability. If he were here I know that his efforts would be highly appreciated; but, wherever his tent happens to be pitched, his services will be more highly appreciated because they will be of much longer duration. So, in his absence, I will briefly say to you that on this occasion you are, as well as on all other similar occasions in the past you have been, heartily welcome to our city, our county and to all of northeastern Pennsylvania.

In extending a welcome to the medical representatives of our state I am aware that I am extending a welcome to the members of a profession who are the recipients of more heartfelt welcome than those of any other profession or calling. I know of no class of men whose arrival and presence are so appreciated as that of the family physician and obstetrician, and we know that that welcome is genuine. It is read in the anxious faces of those who are deeply interested. It is too eloquent to be expressed in words. There is nothing that appeals more to human sympathy than human suffering, and there is nothing nobler than an unselfish effort to relieve it. No matter how valuable the services of the surgeon may be, his reception is usually a little less cordial. Where, however, the results are happy, his share of gratitude makes up for the lack of a more cordial reception.

We hope that at the termination of our meeting you will carry back with you many pleasant recollections and favorable impressions of our city and its institutions. In regard to the latter the Committee on Entertainment has arranged for visits that will make you familiar with them. There is, however, one thing which may at first strike you unpleasantly, that is, our piles of culm. We tolerate them because we have to and try to comfort ourselves by remembering for what they stand. They stand as monuments to the industry, the business foresight and energy of our people past and present; an energy which connected this valley when a wilderness with tide water by means of a canal from Honesdale to the Hudson, and two gravity roads crossing the mountains on the east; on one of these roads which terminated at Honesdale the first locomotive engine to turn a wheel in the United States was placed in 1829. They stand for millions of dollars which have passed from the employer to the employed, for untold millions that rested and still rest beneath the surface. They stand as monuments to those who inaugurated this enterprise but who are now resting beneath monuments of a different color.

As the representative of the Lackawanna County Medical Society, I bid you welcome.

President McAlister: We were grateful to the Lackawanna County Medical Society for the invitation to meet in Scranton. We now appreciate the cordial welcome from our hosts. The spirit of generous hospitality prepared by them is manifest everywhere, and I know we shall enjoy it all to the fullest extent.

Presentation of Program

BY DR. HENRY D. JUMP, PHILADELPHIA, CHAIRMAN OF COMMITTEE ON SCIENTIFIC WORK

Mr. President and Members of the Society: The program has been completed and is in your hands. We trust that you will find it instructive and of value. The committee has worked on it with great vigor and we hope that it will be satisfactory to you. I would call attention to a lecture to be given in this room immediately after the adjournment of the Surgical Section, on "Hydrotherapy, the Cure in America," illustrated by moving pictures of the various spas in the United States, to be given by Dr. William George Russell of Fortress Monroe, Va.

On Thursday evening there will be a lecture by Dr. William B. Cannon of Boston, on "The Value of Animal Experimentation." Dr. Cannon represents the American Medical Association which stands for the best in animal experimentation properly regulated. I ask your attention to this lecture because of its value to us. This address will be preceded by a demonstration of the photography of flowers, the photographs being taken in color by Dr. C. B. Longenecker of Philadelphia.

Tomorrow afternoon in the Section on Medicine Dr. Samuel G. Dixon will read a paper on "Typhoid Fever" in connection with the symposium on that subject. Dr. Dixon's name was not put on the program because he felt that he could not get here. Later he found he could come and we shall have the pleasure of hearing him tomorrow.

I want particularly to call the attention of those of us who are practicing general medicine to the symposium on "Vertigo" to be held on Thursday morning in the Section on Eye, Ear, Nose and Throat Diseases. Drs. Jones, Fisher and Brumm will demonstrate this subject by moving pictures in connection with their papers and the matter is one of particular value to those of us who are not specialists. On Friday morning a demonstration will be given in the clinics.

Finally, I want again to call your attention to Dr. Cannon's lecture on "Animal Experimentation," which subject stands at the root of progress in medicine.

President McAlister: No appreciation would be fully expressed without stating our obligation to the chairman of the Committee on Scientific Work who for three years has given us programs of unusual excellence. Good programs do not just happen. They are good programs because some one has spent many hours walking the floor and even, perchance, tearing his hair. That some one has been Dr. Jump. It may be that some of the energy and vitality of his name has been injected into those programs. At any rate, they have been interesting and instructive to all whom they have touched.

I believe I am telling the truth when I say that one of the busiest men in this state is the chairman of the Committee on Arrangements who, in addition to being a busy practitioner, the efficient secretary of the Lackawanna County Medical Society, is chairman of the Committee on Arrangements and innumerable other committees. Dr. Harry W. Albertson of Scranton will present to us this morning the program of entertainment.

Announcement of Entertainments

BY DR. HARRY W. ALBERTSON, CHAIRMAN OF COMMITTEE ON ARRANGEMENTS

Mr. President and Members of the State Medical Society: The arrangement of the entertainment for your pleasure here has been no small matter. We began these arrangements early because we felt that when you came to Scranton we wanted you to have a good time. Our sole object in entertaining you this time is to prove our hospitality to the members of the State Medical Society. There has been issued for your use a little handbook, a part of our usual monthly publication, which we hope you will peruse, and if you find places that attract you, that you will visit them. There are many places of historic interest and of beautiful sightseeing spots in the neighborhood of Scranton. The city with its mining industry offers many feats of engineering which other communities do not, and these are open to you if you choose to visit them. We have also issued a little book of coupons which we hope that you and the visiting ladies will take advantage of. The old adage of "All work and no play makes Jack a dull boy," is no less exactly true of the medical profession. The hours not used in scientific work will be adequately taken care of by the entertainment we have provided for you. The first of the entertainments to which I want to call your attention is that to be held at the Century Club, 612 Jefferson Avenue, at 3:30 this afternoon. Automobiles will be at hand to take the ladies. There will be given at the Club a very beautiful demonstration of color photography by Dr. C. B. Longenecker, after which the ladies of the Century Club will give a reception and tea for the visiting ladies. We felt this year that some little departure from the usual program might not be amiss and with this idea we have prepared for your entertainment this evening a reception by the Lackawanna County Medical Society to the members of the Medical Society of the State of Pennsylvania. This will be held at the building of the International Correspondence Schools at 8 o'clock. This plant, which is the largest concern devoted exclusively to the manufacture of textbooks, will be in operation from 8 to 10 o'clock. We hope you will see it. After the tour through this plant we shall endeavor to entertain you for the balance of the evening with a band concert, a dance, refreshments and a generally good time. Every member of the Lackawanna County Medical Society is a self-constituted committee to see that you are fully entertained.

Tomorrow morning there will be an automobile drive around Lake Scranton, returning by Nay Aug Park where Dr. Davis will give a talk on ornithology. Automobiles will be at the Hotel Casey at 10 o'clock. Another entertainment tomorrow will be a visit to the button manufactory and to the silk mills. There will be a trip to Montrose on Wednesday for dinner and return through the agricultural districts. Automobiles bearing the insignia of the Pennsylvania State Medical Society have been placed at your disposal by the members of the Lackawanna County Medical Society. When you see these signs know that they mean you are to get in and ride. This is just another way of expressing our hospitality.

The secretary of the Board of Trade extends to you also an invitation to visit the rooms of the Board. In the directors' room you will find on file newspapers of your home town. The Elks Club also extends to you the privileges of membership.

We have prepared also some clinics. Notice of these will be posted on the bulletin board in the Hotel Casey, and I would especially call to your attention the clinic by Drs. Fisher, Brumm and Jones on the treatment of vertigo, on Friday morning.

Arrangements have also been made for a trip of inspection through the mines on Wednesday and Thursday afternoons.

Again, as chairman of the Committee of Arrangements, I want to extend to you a hearty welcome, and to say that if there is anything which the members of the Lackawanna County Medical Society can do to make your stay more pleasant or profitable, let us know and we shall be at your service.

President McAlister: This Society wishes to express its appreciation of the welcome of the local Committee on Arrangements which has been actively engaged many months in the endeavor to make this meeting a memorable success. No detail has been forgotten, and I am sure that when we come to leave this anthracite metropolis we shall find that the railroads have provided short and easy means of egress from this city of hospitality.

We are pleased that the Connecticut State Medical Society thinks sufficiently well of us to send to us two delegates from their Society, Dr. William H. Carmalt of New Haven, and Dr. Everett J. McKnight of Hartford.

Dr. Carmalt: *Mr. President and Gentlemen:* I have quite a strong feeling in the back of my head that our relative positions here should be reversed; that instead of your extending to me this cordial welcome I should be offering you, from near the scenes of my very early boyhood, the hospitality of my native state. I knew this locality long before it was Scranton, so that I venture to ask the privilege figuratively and temporarily of being considered the host rather than the guest; to call myself at home and welcome you to the place I knew some seventy-five years ago as Slocum Hollow.

In the early forties I traveled this route over the Pocono Mountain, not by rail or automobile as you do, but by a slow and tedious crawl with our own horses, taking nearly as many days as you do hours, stopping at the wayside tavern at Slocum Hollow for a frugal meal, not at Casey's luxurious hostelry which you have provided for your guests, on our way to Bethlehem now made surgically famous by our mutual friend, Dr. Estes, and the Bethlehem Steel Works, and then as now known as the abiding place of the Moravian Community. From there, however, the roads were smooth to our objective, Chester County, the birthplace of my parents. More frequently, however, we went farther west, by stage coach, through Tunkhannock, Wilkes-Barre and Hazelton, now also made surgically famous by Drs. Taylor and Lathrop, who it is pleasant also to call my friends.

At that time anthracite coal had but recently been discovered, and was being burned experimentally instead of wood in open fireplaces. The immensity of these coal fields was unknown, and I dimly remember listening to my father discussing with his friend Mr. Charles Miner, the well known editor of the Luzerne *Federalist,* and historian of the Wyoming Valley, the possibility of the general use as fuel of the "black rocks." Wilkes-Barre was then the principal city of this region of northern Pennsylvania.

There is an historical connection between the states of Connecticut and Pennsylvania that is possibly unknown to many of you, of a much less peaceable character than this fraternal gathering, having the massacre of Wyoming as an incident; viz., that in the latter part of the seventeenth century this was a part of Connecticut; it was not Pennsylvania at all; and the settlement of the question did not come until after the Revolution; indeed, it was not until 1807 that the final adjustment was effected. The dispute came about through the corruption in the courts of Charles II of England and his successor James II granting to favorites the same lands in the then unexplored wilderness of this region, Charles giving to settlers in Hartford, Connecticut, all the land in the same latitude extending from the western border of Connecticut to the "South Sea," an undefinable water, now known as the Pacific Ocean, reserving only that part "already occupied by a Christian power," thus jumping over that part of New York State extending from Manhattan up the Hudson River toward Albany. The territory thus illy defined was included in a grant subsequently given by James II to the Penn family. Connecticut pioneers moved in first, but the country was so sparsely settled that it was not until some time after that the conflict in land titles became known. These brought about animosities which were aggravated by the political issues of the period so that, when Colonials and Tories lined up against each other, the inclusion of the Indians with the latter came about here, as it did in the Burgoyne campaign from Canada, with the Wyoming massacre as the outcome.

I doubt if many of this audience who glided so rapidly and smoothly by rail or automobile through the Tobyhanna swamps, part of which you saw converted into large ponds for the supply of ice by the thousand tons for the Philadelphia and New York markets, realized that this was the scene of one of the most horrible events of the war of the Revolution; that through those then pathless wilds, women and children accompanied by a few men, the survivors of the massacre, fled from certain death at the hands of ruthless savages to the no less terrible wild beasts that roamed unhindered through these great swamps. Babies were born and others died in this awful journey; mothers carried their dead babies for miles, that their bodies might not be devoured by bears and wolves that attacked stragglers and ate those that died by the way. We play golf and tennis and the general government trains its soldiers where this awful tragedy was enacted. The fugitives found safety and shelter at last at Fort Penn, where Stroudsburg now stands.

I beg the liberty, in the name of the Medical Society of Connecticut, to congratulate the Medical Society of the State of Pennsylvania on the excellence of your public health system, so ably conducted by your commissioner of public health, Dr. Dixon. That he should be able to carry out that most successful form of government, a benevolent despotism, removed from party politics, as your laws allow, is a matter of sincere congratulation; I wish the state of Connecticut would follow your lead. I beg in closing to apologize for the garrulity of age and to thank you for your attention.

President McAlister: Dr. Carmalt has given us a very interesting account of transportation in this section of Pennsylvania in the earlier days and some interesting matters of history. We are very pleased to introduce these gentlemen and to extend to them the privileges of the Society. We have received letters introducing as delegates Messrs. Theodore Campbell and J. Atlee Dean of Philadelphia, and P. Henry Utech of Meadville, members of the American Pharmaceutical Association, to whom if they are present we also extend the same privileges.

Ladies and Gentlemen: I want to thank you for the patience you have had with me on the various occasions when I have had the temerity to address you as president of this Society. Many of you, if not all, have been far more fitted by ability and natural gift to have had our relative positions reversed—yours as president; mine, in the ranks among those present.

It was my earnest desire when I took office to be of some service, to make our Society a stronger and better medium to fight the battles for better health and the uplift of our profession. If I have accomplished even a tithe of what I hoped for, it is because of your sympathetic helpfulness and ever ready cooperation. The president of any society is but the mouthpiece of that society. Sometimes I have felt that I as a mouthpiece have been most ineffective and have been found wanting. May Dr. Codman, my worthy and far more able successor, be more successful in leading the Society to a triumphant position in whatever cause it may espouse. As I step down—but not out, I trust—I leave my felicitations to my successor, and I can assure him that being president of the Medical Society of the State will be an inspiration to him that will live as long as life and memory last. Dr. Codman—This gavel is the symbol of authority in our Society. In your possession it betokens the confidence of the Society in your ability and integrity. Our President, Dr. Charles A. E. Codman.

The President's Address, "The Business Features of the Medical Society of the State of Pennsylvania," was delivered by Dr. Charles A. E. Codman, Philadelphia. The address was referred to the Reference Committee on Reports of Officers and Committees. (See Journal for October, page 63.)

On motion of Dr. J. B. Carrell, Hatboro, a rising vote of thanks was given Dr. McAlister for the very efficient manner in which he had presided over the deliberations of the Society in the past year. This was acknowledged by Dr. McAlister.

Dr. Codman, in announcing the first paper, requested that no motion be made for increase of time to an individual reader so that men at the end of the program might not be crowded off.

"A Criminal Epileptic with Consideration of Epilepsy as a Medicolegal Problem" was read by Dr. Nathaniel S. Yawger, Philadelphia, and discussed by Drs. Hugh B. Meredith, Danville; William H. Carmalt, New Haven, Conn.

"State Care of the Insane" was read by Dr. Charles W. Burr, Philadelphia, and discussed by Drs. Charles H. Frazier, Owen Copp, Philadelphia, and John A. Lichty, Pittsburgh.

"The Workmen's Compensation Law" was read by Dr. William L. Estes, South Bethlehem. This paper being an official communication was referred to the Reference Committee on Reports of Officers and Committees.

Adjourned until Wednesday, September 20, at 9 a. m.

Wednesday Morning, Sept. 20, 1916

The meeting was called to order by the First Vice President, Dr. J. Torrance Rugh, Philadelphia, at 9:30 a. m.

"What Can Be Done to Improve the Milk Supply in Pennsylvania?" was read by Dr. Louis A. Klein, Philadelphia, and discussed by Drs. Theodore B. Appel, Lancaster; Henry F. Smyth, Wayne; George E. Holzapple, York; W. S. Gimper, Harrisburg; Joseph W. Albright, Muncy; John B. Carrell, Hatboro, and closed by Dr. Klein.

Dr. C. H. Miner presented the following resolution which was unanimously adopted with the request that the proper delegate present it to the House of Delegates for action thereon:

Whereas, The commonwealth of Pennsylvania maintains an advanced position on all matters pertaining to public health and wholesome foods except milk hygiene, and

Whereas, Extensive investigations by federal, state and municipal authorities have shown dangerously insanitary conditions to exist on many dairy farms and in connection with the handling of milk and milk food products by creameries and other milk dealers within the commonwealth and in neighboring states which transport their products into our commonwealth, and

Whereas, There is no state law which can be invoked to abolish these undesirable and dangerous conditions, therefore be it

Resolved, That the Medical Society of the State of Pennsylvania recommend to the incoming general assembly of the state the adoption and passage of an adequate milk hygiene bill which shall embrace reasonable sanitary requirements covering the production and handling of milk and milk food products within this commonwealth, and that those products from other states intended for distribution within this commonwealth shall conform to the same requirements, and be it further

Resolved, That one of the efficiently organized departments of the state government shall be charged with the enforcement of the milk hygiene act in all places beyond the corporate limits of any city, borough or township of the first class and that the municipal authorities shall have jurisdiction over the production, handling and distribution of milk and milk food products within corporate limits.

"Carriers" was read by Dr. Henry J. Benz, Pittsburgh, and discussed by Dr. B. Franklin Royer, Harrisburg.

"The Significance of Hunger Pain" was read by Dr. John W. Luther, Palmerton, and discussed by Drs. William H. Howell, Altoona; John B. McAlister, Harrisburg; John A. Lichty, Pittsburgh; Ernest Laplace, Philadelphia; Herbert B. Gibby, Wilkes-Barre; Harold L. Foss, Danville.

"Diabetic Gangrene," by Drs. John H. Jopson and Edward H. Goodman, Philadelphia, was read by Dr. Jopson, and discussed by Dr. Moses Behrend, Philadelphia, and closed by Dr. Jopson.

The Second Vice President, Dr. Edgar M. Green, Easton, took the chair.

"The Relation of the Medical Profession to the Public—the Problem of the Cripple," was read by Dr. J. Torrance Rugh, Philadelphia, and discussed by Drs.

Gwilym G. Davis, Philadelphia; Charles W. Delaney, Altoona, and closed by Dr. Rugh.

"Facts and Fallacies Concerning Electrotherapeutics," by Dr. William L. Clark, Philadelphia, was read by Dr. G. G. Davis, and discussed by Drs. Henry C. Westervelt, Pittsburgh; J. T. Rugh and G. G. Davis, Philadelphia.

"Ringworm of the Scalp Cured with the Roentgen Ray; Report of Eighty-Three Cases and a Short Résumé of the Affection," by Drs. Frank C. Knowles and John B. Ludy, Philadelphia, was read by Dr. Knowles.

Adjourned at 12:55 p. m., until Thursday, September 21, at 2 p. m.

Thursday Afternoon, Sept. 21, 1916

The meeting was called to order by President Codman at 2:10 p. m.

"Internal Secretions and Their Relation to Nervous Disorders" was read by Dr. Seymour DeWitt Ludlum, Philadelphia.

"Fecal Incontinence" was read by Dr. Samuel G. Gant, New York, and discussed by Dr. Ira G. Shoemaker, Reading.

"The Cooperation of Physician and Surgeon in the After-Treatment of Patients Operated on for Diseases of the Gastro-Intestinal Tract," by Drs. Edward H. Goodman and John Speese, Philadelphia, was read by Dr. Speese, and discussed by Dr. John A. Lichty, Pittsburgh.

"Clinical Interpretation of the Wassermann Reactions," by Drs. John A. Lichty, Pittsburgh, and James H. Whitcraft, Wilkinsburg, was read by Dr. Whitcraft.

"Modern Diagnosis and Results Clinically, Serologically and Sociologically of Syphilis Treated with Salvarsan and Its Substitutes" was read by Dr. Benjamin A. Thomas, Philadelphia.

"The Treatment of Syphilis by the Use of Salvarsan and Neosalvarsan, Demonstrating the Wassermann Control" was read by Dr. John D. Wilson, Scranton.

The preceding three papers were discussed by Drs. George M. Piersol, John A. Kolmer, Philadelphia, and closed by Drs. Lichty and Thomas.

President Codman made the following appointments on committees: Reappointment of Dr. Henry D. Jump, Philadelphia, chairman of the Committee on Scientific Work; Dr. John B. McAlister, Harrisburg, chairman of the Committee on Public Policy and Legislation, Dr. Wilmer Krusen having resigned, and Dr. George A. Knowles, Philadelphia, to the vacancy on this committee; reappointment of Dr. Alfred Stengel, Philadelphia, on the Committee on Society Comity and Policy; Dr. Frank P. Lytle, Birdsboro, on the Committee on Health and Public Instruction.

Society in general meeting adjourned.

Charles A. E. Codman, President,
Cyrus Lee Stevens, Secretary.

MINUTES OF THE SECTION ON MEDICINE

Tuesday Afternoon, Sept. 19, 1916

The Section on Medicine convened in the Masonic Temple, Scranton, Sept. 19, 1916, and was called to order at 2 p. m., by the chairman, Dr. J. Wesley Ellenberger, Harrisburg.

The Chairman's Address was delivered by Dr. Ellenberger.

"Types of Pneumococci Found in Children" was read by Dr. A. Graeme Mitchell, Philadelphia.

"The Specific Treatment of Acute Lobar Pneumonia" was read by Dr. Rufus I. Cole, New York.

"The Treatment of Pneumonia by Other Than Specific Methods" was read by Dr. M. Howard Fussell, Philadelphia.

The preceding three papers were discussed by Dr. Lawrence Litchfield, Pittsburgh, and closed by Drs. Mitchell, Cole and Fussell.

Dr. W. Duffield Robinson of Philadelphia asked that announcement be made of an address to be given September 27 at the meeting of the Philadelphia County Medical Society by Dr. Carl L. Ansberg, chief of the Bureau of Chemistry of the Department of Agriculture of the United States, and an invitation be extended to all physicians to be present.

"Osteomalacia" was read by Dr. Lawrence Litchfield, Pittsburgh.

"Acidosis" was read by Dr. J. Harold Austin, Philadelphia, and discussed by Dr. Alfred Stengel, Philadelphia.

"The Failing Heart; Recognition and Care of Certain Types" was read by Dr. Howard S. Anders, Philadelphia, and discussed by Dr. James D. Heard, Pittsburgh.

Adjourned until Wednesday, September 20, at 2 p. m.

Wednesday Afternoon, Sept. 20, 1916

The Section was called to order at 2:10 p. m., by the chairman, Dr. Ellenberger.

The report of the Executive Committee submitted the nomination of Dr. David Riesman, Philadelphia, for chairman; Dr. Irwin J. Moyer, Pittsburgh, for secretary of the Section for the ensuing year. On motion, duly seconded, this report was adopted, the nominees being chosen.

"The Curability of Certain Cases of Chronic Nephritis" was read by Dr. Alfred Stengel, Philadelphia.

Dr. Samuel G. Dixon, President-Elect, was asked to take a seat on the platform, when he expressed his appreciation of his election to the presidency of the Society.

Dr. Stengel's paper was then discussed by Drs. David Riesman, Philadelphia; James D. Heard, Pittsburgh; George E. Holtzapple, York; Harry M. Keller, Hazleton, and closed by Dr. Stengel.

"Typhoid and Typhophors" was read by Dr. Samuel G. Dixon, Harrisburg, and discussed by Dr. Alfred Stengel, Philadelphia.

"The Attitude of the Department of Labor and Industry Toward the Problem of Occupational Diseases" was read by Mr. John Price Jackson, Harrisburg, and discussed by Drs. J. W. Schereschewsky, James I. Johnston, Pittsburgh; H. F. Smyth, Francis D. Patterson, Philadelphia; James M. Johnston, Huntingdon.

"Some Phases of Chronic Colitis" was read by Dr. Edwin Zugsmith, Pittsburgh, and discussed by Drs. Samuel G. Gant, New York; Lawrence Litchfield, Pittsburgh, and closed by Dr. Zugsmith.

"Chemical Diagnosis of Diseases of the Gallbladder" was read by Dr. Martin E. Rehfuss, Philadelphia.

Adjourned until Thursday, September 21, at 9 a. m.

Thursday Morning, Sept. 21, 1916

The Section was called to order at 9:30 a. m., by the chairman, Dr. Ellenberger.

"The Diagnosis and Treatment of Chronic Intestinal Indigestion in Children" was read by Dr. Robert K. Rewalt, Williamsport, and discussed by Dr. Henry Lowenburg, Philadelphia.

"The Value of Roentgen Rays in the Diagnosis of Pulmonary Tuberculosis" was read by Dr. Willis F. Manges, Philadelphia, and discussed by Drs. George E. Pfahler, Philadelphia; James I. Johnston, Pittsburgh.

"Epidemiology and Clinical Features of Infantile Paralysis" was read by Dr. Charles A. Fife, Philadelphia, and discussed by Drs. Alfred Hand, Jr., Theodore LeBoutillier, Theodore H. Weisenburg, Philadelphia; B. Franklin Royer, Harrisburg, and closed by Dr. Fife.

"Some Phases of the Drug Habit Problem, Especially in Relation to the Harrison Law," was read by Dr. John H. W. Rhein, Philadelphia.

On motion the Section adjourned to attend the demonstration in connection with the symposium on "Vertigo," to be given at 12 o'clock at Hotel Casey, and to have the final paper on the program read after this demonstration.

"The Value of Splenectomy in the Anemias," by Dr. Edward B. Krumbhaar, Philadelphia, was read by title, as the Section did not reconvene on account of the lateness of the hour.

J. Wesley Ellenberger, Chairman,
David Riesman, Secretary.

MINUTES OF THE SECTION ON SURGERY

Tuesday Afternoon, Sept. 19, 1916

The Section on Surgery convened in the Ball Room of Hotel Casey, Scranton, Sept. 19, 1916, and was called to order at 2 p. m., by the chairman, Dr. L. J. Hammond, Philadelphia.

The Chairman's Address was delivered by Dr. Hammond.

In the symposium on "First Aid," the "Railroad Phase" was read by Dr. Joseph B. Hileman, Harrisburg.

"Injuries Common to Policemen and Firemen and Their First Aid Treatment" was read by Dr. Hubley R. Owen, Philadelphia.

The preceding two papers were discussed by Drs. J. B. Carnett, Edward Martin, Philadelphia; William Francis Skinner, Chambersburg; A. W. Colcord, Clairton; John B. Lowman, Johnstown, and closed by Dr. Owen.

"Modern Hospital Organization in Rural Pennsylvania" was read by Dr. Harold L. Foss, Danville, and discussed by Drs. Theodore B. Appel, Lancaster; Americus R. Allen, Carlisle; William H. Walsh, John B. Roberts, J. Montgomery Baldy, Philadelphia; Frederick L. Van Sickle, Olyphant; John B. McCreary, Shippensburg; J. B. Hileman, Harrisburg, and closed by Dr. Foss.

"The Treatment of Deformed Union and Nonunion of Fractures" was read by Dr. John B. Roberts, Philadelphia.

"The Treatment of Compound Fractures" was read by Dr. Jonathan M. Wainwright, Scranton.

The preceding two papers were discussed by Drs. John B. Lowman, Johnstown; J. Torrance Rugh, Edward Martin, Moses Behrend, Philadelphia; William L. Estes, South Bethlehem; C. E. Thomson, Scranton; G. Franklin Bell, Williamsport; Amos W. Colcord, Clairton, and closed by Drs. Roberts and Wainwright.

"Goiter" was read by Dr. Lever F. Stewart, Clearfield, and discussed by Drs. Donald Guthrie, Sayre; J. Leon Herman, Charles H. Frazier, Philadelphia; Granville T. Matlack, Wilkes-Barre; George C. Johnston, Pittsburgh, and closed by Dr. Stewart.

Adjourned at 5 p. m., until Wednesday, September 20, at 2 p. m.

Wednesday Afternoon, Sept. 20, 1916

The Section was called to order at 2 p. m., by the chairman, Dr. Hammond, who presented the report of the Executive Committee recommending Dr. A. Ralston Matheny, Pittsburgh, for chairman, and Dr. Donald Guthrie, Sayre, for secretary of the Section for the ensuing year. The nominees were unanimously elected.

"Support of the Stomach After the Beyea Gastropexy" was read by Dr. T. Turner Thomas, Philadelphia, and was discussed by Drs. Henry D. Beyea, Henry K. Pancoast, George M. Dorrance, Philadelphia; Harvey F. Smith, Harrisburg, and closed by Dr. Thomas.

"Obstruction of the Common Bile Duct" was read by Dr. Charles D. Schaeffer, Allentown.

"Cholecystectomy the Operation of Choice," was read by Dr. A. Ralston Matheny, Pittsburgh.

The preceding two papers were discussed by Drs. John A. Lichty, Pittsburgh; Ernest Laplace, J. H. Jopson, Philadelphia; Harold L. Foss, Danville, and closed by Dr. Matheny.

"Gastric and Duodenal Ulcer from the Study of Twenty-Five Operative Cases" was read by Dr. Herbert B. Gibby, Wilkes-Barre, and discussed by Drs. Herbert D. Gardner, Charles E. Thomson, Scranton; Francis P. Ball, Lock Haven; John A. Lichty, Pittsburgh, and closed by Dr. Gibby.

"The Value and Limitation of Radiotherapy in Gynecology" was read by Dr. Floyd E. Keene, Philadelphia, and discussed by Drs. Henry K. Pancoast, Philadelphia, and George C. Johnston, Pittsburgh.

"The Disposition of the Ligaments in Hysterectomy" was read by Dr. Stephen E. Tracy, Philadelphia, and discussed by Drs. Charles G. Strickland, Erie; William L. Estes, South Bethlehem, and closed by Dr. Tracy.

"The Occurrence of Empyema in Pneumonia and Influenza" was read by Dr. George P. Müller, Philadelphia, and discussed by Drs. A. Ford Eastman, Erie; Joseph D. Findley, Altoona; John L. Atlee, Lancaster; John T. Macdonald, Bloomsburg; Lowell M. Gates, Scranton, and closed by Dr. Müller.

"Some of the More Unusual Affections Involving the Deep Urethra and Bladder, and Their Operative Treatment" was read by Dr. Ellwood R. Kirby, Philadelphia, and discussed by Drs. Samuel J. Waterworth, Clearfield; J. Leon Herman, Philadelphia, and closed by Dr. Kirby.

Adjourned at 5:20 p. m., until Thursday, September 21, at 9 a. m.

Thursday Morning, Sept. 21, 1916

The Section was called to order at 9 a. m.

"Abnormal Coagulation Time of the Blood and Methods of Overcoming It" was read by Dr. George

Morris Dorrance, Philadelphia, and discussed by Dr. Ernest Laplace, Philadelphia, and closed by Dr. Dorrance.

"Advantages of Localized Anesthesia" was read by Dr. Harvey F. Smith, Harrisburg, and discussed by Drs. J. Torrance Rugh, Charles F. Nassau, Ernest Laplace, George Erety Shoemaker, Kate Baldwin, Philadelphia; Samuel G. Gant, New York, and closed by Dr. Smith.

"The Conservative Treatment of Puerperal Sepsis" was read by Dr. Edward E. Montgomery, Philadelphia, and discussed by Drs. George Erety Shoemaker, Kate Baldwin, Charles F. Nassau, Philadelphia; G. Franklin Bell, Williamsport; Charles E. Thomson, Scranton, and closed by Dr. Montgomery.

"Idiosyncrasies in Ectopic Pregnancy" was read by Dr. W. Albert Nason, Roaring Spring, and discussed by Drs. Charles B. Noecker, Scranton; Edward E. Montgomery, Philadelphia.

"Tuberculous Abscesses" was read by Dr. Charles W. Delaney, Altoona, and discussed by Drs. J. Norman White, Scranton; J. Torrance Rugh, Philadelphia, and closed by Dr. Delaney.

"Influence of Lesions of the Rectum on Various Abdominal Conditions" was read by Dr. Ernest Laplace, Philadelphia, and discussed by Dr. Reed Burns, Scranton, and closed by Dr. Laplace.

"Closure of Fecal Fistula by Extraperitoneal Method" was read by Dr. Charles F. Nassau, Philadelphia, and discussed by Dr. Ernest Laplace, Philadelphia.

"Habitual Dislocation of the Ulna, Report of a New Operation" was read by Dr. Moses Behrend, Philadelphia, and discussed by Dr. J. Torrance Rugh, Philadelphia.

On motion of Dr. Ernest Laplace, a vote of thanks was extended to the chairman, Dr. Levi Jay Hammond, for the very impartial way in which he had ruled over the Section's deliberations. At the suggestion of Dr. Charles E. Thomson, this was tendered him by a rising vote.

Section adjourned at 12:20 p. m.

LEVI JAY HAMMOND, Chairman,
JOHN L. ATLEE, Secretary.

MINUTES OF THE SECTION ON EYE, EAR, NOSE AND THROAT DISEASES

TUESDAY AFTERNOON, SEPT. 19, 1916

The Section on Eye, Ear, Nose and Throat Diseases convened in the private dining rooms, Hotel Casey, Scranton, Sept. 19, 1916, and was called to order at 2:15 p. m., by the chairman, Dr. Clarence M. Harris, Johnstown.

The Chairman's Address was delivered by Dr. Harris.

"Hydrophthalmos" was read by Dr. Harvey M. Becker, Sunbury, and discussed by Drs. Edward B. Heckel, Pittsburgh, and Wendell Reber, Philadelphia.

"Bilateral Metastatic Panophthalmitis Following Pneumonia, with Fatal Issue" was read by Dr. Granville A. Lawrence, Philadelphia, and discussed by Drs. Wendell Reber, Philadelphia; John F. Culp, Harrisburg; Edward B. Heckel, Pittsburgh, and closed by Dr. Lawrence.

"The Status of the Lingual Tonsil and Its Surgery" was read by Dr. James A. Babbitt, Philadelphia, and discussed by Drs. George M. Coates, George W. Mackenzie, Philadelphia; Lewis H. Taylor, Wilkes-Barre; Clarence M. Harris, Johnstown, and closed by Dr. Babbitt.

"Symptoms of Empyema of the Maxillary Sinus; a Simple Operative Method for Its Relief" was read by Dr. John J. Sullivan, Scranton, and discussed by Drs. George M. Coates, Ross H. Skillern, Ben Clark Gile, George W. Mackenzie, Philadelphia; Frederick P. Hollister, Frederick J. Bishop, Scranton; George C. Johnston, Pittsburgh; Clarence M. Harris, Johnstown, and closed by Dr. Sullivan.

"Disappointments Following Tonsillar Operations" was read by Dr. Ben Clark Gile, Philadelphia, and discussed by Dr. James A. Babbitt, Philadelphia.

"What Is the Diagnosis?" was read by Dr. Frank N. Emmert, Chambersburg, and discussed by Dr. George W. Mackenzie, Philadelphia, and closed by Dr. Emmert.

"Trachoma, a Diagnostic Point and a Method of Treatment" was read by Dr. Vite E. VanKirk, Pittsburgh, and discussed by Drs. Friend A. Cross, Scranton; Clarence M. Harris, Johnstown, and closed by Dr. VanKirk.

WEDNESDAY AFTERNOON, SEPT. 20, 1916

The Section was called to order at 2:15 p. m., by the chairman, Dr. Harris. The report of the Executive Committee and the election of officers were deferred until later in the meeting.

"Mine Injuries to the Eye as Related to the Compensation Law" was read by Dr. Gilbert D. Murray, Scranton, and discussed by Drs. William Campbell Posey, Philadelphia; George H. Cross, Chester; Clinton J. Kistler, Lehighton; John B. Corser, G. Edgar Dean, Walter M. Reedy, Scranton; George R. S. Corson, Pottsville, and closed by Dr. Murray.

"The Use of Ethylhydrocuprein in Diseases of the Eye" was read by Dr. William Zentmayer, Philadelphia, and was discussed by Drs. Burton Chance, Philadelphia; Stanley S. Smith, Pittsburgh; Clarence M. Harris, Johnstown, and closed by Dr. Zentmayer.

The report of the Executive Committee was presented, recommending Dr. John F. Culp, Harrisburg, for chairman, and Dr. George B. Jobson, Jr., Franklin, for secretary of the Section for the ensuing year. These candidates were unanimously elected, Dr. Zentmayer being directed to cast the ballot.

In the symposium on "Intracranial Lesions of Otitic Origin," "Cerebellar Abscess—Symptoms and Differential Diagnosis," by Dr. Philip D. Kerrison, New York, was read by the secretary. Dr. Kerrison, on account of the fact that his sister was dying, was not present. On motion of Dr. John F. Culp, Harrisburg, a vote of thanks was given to Dr. Kerrison for his valuable paper, and the secretary was directed to send him a letter of sympathy.

"Infective Sinus Thrombosis" was read by Dr. Ralph Butler, Philadelphia.

"Temporosphenoidal Abscess" was read by Dr. George W. Mackenzie, Philadelphia.

The papers in the symposium were discussed by Drs. Nathan P. Stauffer (who had sent his written discussion which was read by the secretary), James A. Babbitt, Philadelphia; G. R. S. Corson, Pottsville; George B. Jobson, Jr., Franklin, and closed by Drs. Butler and Mackenzie.

Adjourned at 5 p. m., until Thursday, September 21, at 9 a. m.

Thursday Morning, Sept. 21, 1916

The Section was called to order at 9:30 a. m., by the chairman, Dr. Harris.

"Use of Prisms in Ophthalmic Practice" was read by Dr. Joseph E. Willetts, Philadelphia, and discussed by Dr. B. Alexander Randall, Philadelphia, and closed by Dr. Willetts.

"Cranial Nerve Syphilis; Technic of Treatment" was read by Dr. A. Ford Eastman, Erie, and discussed by Drs. David N. Dennis, Erie; Nelson S. Weinberger, Sayre; George W. Mackenzie, B. Alexander Randall, Philadelphia; John B. Corser, Scranton; Clarence M. Harris, Johnstown, and closed by Dr. Eastman. On motion of Dr. John J. Sullivan, Scranton, a rising vote of thanks was given to Dr. Eastman.

"Early Care of Suppurative Conditions of the Middle Ear and Mastoid" was read by Dr. Nelson S. Weinberger, Sayre, and discussed by Drs. Lewis H. Taylor, Wilkes-Barre; John J. Sullivan, Scranton; B. Alexander Randall, George W. Mackenzie, Philadelphia; G. R. S. Corson, Pottsville; Clarence M. Harris, Johnstown, and closed by Dr. Weinberger.

A motion was made and carried that "Removal of Foreign Bodies by Direct Bronchoscopy and Esophagoscopy," by Dr. Curtis Clyde Eves, Philadelphia, be read by title; but that this should not be considered as a precedent for breaking the rule of the Section. Dr. Eves had been kept away by his wife's illness.

In the symposium on "Vertigo; What Is Dizziness? The Determination of Its Cause by New Ear Tests," a paper on "Neuro-Otology, the Intimate Relation of the Ear to Nearly Every Part of the Central Nervous System" was read by Dr. Isaac H. Jones, Philadelphia.

"How to Diagnose the Cause of Dizziness" was read by Dr. Lewis Fisher, Philadelphia.

"The Application of Neuro-Otology to the Diagnosis of Actual Cases" was read by Dr. Seth A. Brumm, Philadelphia.

The papers in the symposium were discussed by Drs. B. Alexander Randall, Theodore H. Weisenburg, George W. Mackenzie, Philadelphia; Lawrence Litchfield, Pittsburgh.

Section adjourned at 1:40 p. m.

Clarence M. Harris, Chairman,
George B. Jobson, Jr., Secretary.

MINUTES OF THE CONFERENCE OF SECRETARIES

The Eleventh Annual Banquet and Conference of Secretaries of the component societies of the Medical Society of the State of Pennsylvania were held at the Hotel Jermyn, Scranton, Wednesday, September 20, at 4:30 p. m., Dr. J. Treichler Butz of Allentown presiding. The minutes of the 1915 Conference, as printed in the Journal, November, 1915, were read, approved, and on motion adopted.

The illness of Dr. H. H. Whitcomb was reported, and on motion of Dr. William T. Sharpless the chairman appointed Drs. S. D. Gleeten and W. T. Sharpless as a committee of two to send a telegram of greeting to Dr. Whitcomb from the Conference.

The chairman appointed as a Nominating Committee Drs. M. W. Horner, Anthony F. Myers and J. A. Trexler.

On motion, an order was drawn on the treasurer for $12.64 for printing and stationery, and $1.20 for telegram: $13.84.

"Shall the County Society Organ Be Continued?" contributed by Dr. A. B. Hirsh of Philadelphia, was read by Dr. William S. Wray, Philadelphia, and discussed by Drs. M. W. Horner, Mount Pleasant; H. W. Albertson, Scranton; S. D. Gleeten, Erie; William S. Wray, Philadelphia; J. Treichler Butz, Allentown; Luther B. Kline, Catawissa, and J. O. Wagner, Beaver Springs.

At the request of the chairman, Dr. Charles A. E. Codman, President of the State Society, gave a short address on "Medical Organization."

The Nominating Committee made the following recommendations for officers for the ensuing year: Chairman, Dr. H. W. Albertson, Scranton; Vice Chairman, Dr. Scott D. Gleeten, Erie; Secretary-Treasurer, Dr. H. C. Kinzer, Lancaster; Executive Committee, Drs. M. W. Horner, Mount Pleasant; J. A. Trexler, Lehighton; Anthony F. Myers, Blooming Glen. On instruction the secretary cast the ballot for the election of the gentlemen nominated.

Dr. Albertson expressed his appreciation of the honor conferred on him in his election as chairman.

"The Secretary as a Factor in the Society," was read by Dr. Luther B. Kline, Catawissa, and discussed by Drs. H. L. McKown, Tunkhannock; J. O. Wagner, Beaver Springs; A. F. Myers, Blooming Glen; Jesse L. Lenker, Harrisburg, and closed by Dr. Kline.

"Does It Help a Society to Own Its Own Building?" was read by Dr. Malcolm C. Guthrie, Wilkes-Barre.

The following were present: Drs. Charles A. E. Codman, Philadelphia, President of the State Society; Theodore B. Appel, Lancaster, I. J. Moyer, Pittsburgh, W. T. Sharpless, West Chester, and Frederick L. Van Sickle, Olyphant, Trustees of the State Society; and the following secretaries, editors and former members from county societies: Drs. J. B. F. Wyant, Armstrong County; H. P. Brunner, Berks County; C. L. Stevens, Bradford County; Anthony F. Myers and J. B. Carrell, Bucks County; J. A. Trexler, Carbon County; L. B. Kline, Columbia County; Jesse L. Lenker, Dauphin County; S. D. Gleeten, Erie County; Frank N. Emmert, Franklin County; C. G. Brumbaugh and J. M. Keichline, Jr., Huntingdon County; Norman C. Mills, Jefferson County; H. W. Albertson, Lackawanna County; H. C. Kinzer, Lancaster County; W. A. Womer, Lawrence County; J. Treichler Butz, Lehigh County; Malcolm C. Guthrie, Luzerne County; R. F. Trainer, Lycoming County; E. S. Buyers, Montgomery County; Horatio W. Gass, Northumberland County; William S. Wray, Philadelphia County; G. O. O. Santee, Schuylkill County; J. O. Wagner, Snyder County; E. R. Gardner, Susquehanna County; M. W. Horner, Westmoreland County; H. L. McKown, Wyoming County.

Adjourned to the banquet at 7 p. m. After partaking of a bountiful dinner Chairman Butz conducted a general conference, propounding various questions pertaining to society work, which elicited general discussions and proved both interesting and valuable. The Conference adjourned at 9 p. m.

J. Treichler Butz, Chairman,
H. C. Kinzer, Secretary.

OFFICERS AND COMMITTEEMEN FOR THE YEAR 1916-1917

PRESIDENT: Charles A. E. Codman, 4116 Spruce St., Philadelphia.

PRESIDENT ELECT: Samuel G. Dixon, Harrisburg.

VICE PRESIDENTS: First—John B. Corser, Scranton. Second—Joseph W. Albright, Muncy. Third—J. Treichler Butz, Allentown. Fourth—Herbert B. Gibby, Wilkes-Barre.

SECRETARY: Cyrus Lee Stevens, Athens. ASSISTANT SECRETARY: Clarence P. Franklin, 121 S. Sixteenth Street, Philadelphia. TREASURER: George W. Wagoner, 435 Franklin St., Johnstown.

MANAGER OF SESSIONS AND EXHIBITS: William H. Cameron, Box 54, Oakland Station, Pittsburgh.

TRUSTEES AND COUNCILORS

THEODORE B. APPEL, *Chairman*, 305 N. Duke St., Lancaster. Term Expires 1919.

Horatio W. Gass, Sunbury.	Term Expires 1919.	William T. Sharpless, West Chester.	Term Expires 1917.
William W. Lazarus, Tunkhannock.	Term Expires 1919.	Frederick L. VanSickle, Olyphant.	Term Expires 1917.
James Johnston, Bradford.	Term Expires 1918.	Jay B. F. Wyant, Kittanning.	Term Expires 1917.
John B. Lowman, Johnstown.	Term Expires 1918.	Charles A. E. Codman, Philadelphia.	*Ex-officio*
Irwin J. Moyer, Pittsburgh.	Term Expires 1918.	Cyrus Lee Stevens, Athens.	*Ex-officio*

STANDING COMMITTEES

COMMITTEE ON SCIENTIFIC WORK

Henry D. Jump, *Chairman*, 4634 Chester Ave., Philadelphia.

Charles A. E. Codman, Philadelphia.
Cyrus Lee Stevens, Athens.
William H. Cameron, Pittsburgh.
William B. Ewing, Pittsburgh.

And Section Officers as Follows:

Medicine—David Riesman, *Chairman*, Philadelphia; Irwin J. Moyer, *Secretary*, Pittsburgh.
Surgery—A. Ralston Matheny, *Chairman*, Pittsburgh; Donald Guthrie, *Secretary*, Sayre.
Eye, Ear, Nose and Throat—John F. Culp, *Chairman*, Harrisburg; George B. Jobson, *Secretary*, Franklin.
Pediatrics—Samuel McClintock Hamill, *Chairman*, Philadelphia; William N. Bradley, *Secretary*, Philadelphia.

COMMITTEE ON PUBLIC POLICY AND LEGISLATION

John B. McAlister, *Chairman*, 234 N. Third St., Harrisburg, 1917.

Frank G. Hartman, Lancaster, 1918.
George A. Knowles, Philadelphia, 1919.
Charles A. E. Codman, Philadelphia.
Cyrus Lee Stevens, Athens.

COMMITTEE ON SOCIETY COMITY AND POLICY

Lewis H. Taylor, *Chairman*, 83 S. Franklin St., Wilkes-Barre, 1919.

Alfred Stengel, Philadelphia, 1921.
John Oenslager, Jr., Harrisburg, 1920.
Cyrus Lee Stevens, Athens, 1918.
William B. Ewing, Pittsburgh, 1917.

COMMITTEE ON HEALTH AND PUBLIC INSTRUCTION

Samuel G. Dixon, *Honorary Chairman*, Harrisburg.
Charles H. Miner, *Chairman*, 115 S. Franklin St., Wilkes-Barre, 1919.

Frank P. Lytle, Birdsboro, 1921.
James C. May, Manchester, 1920.
Elizabeth Leiper Martin, Princeton, N. J., 1918.
Samuel C. Smith, Hollidaysburg, 1917.

COMMITTEE ON MEDICAL BENEVOLENCE

William S. Wray, *Chairman*, 2007 Chestnut St., Philadelphia.

Edward B. Heckel, Pittsburgh.
William T. Sharpless, West Chester.
George W. Wagoner, Johnstown.
Cyrus Lee Stevens, Athens.

COMMITTEE ON ARRANGEMENTS

William B. Ewing, *Chairman*, Westinghouse Bldg., Pittsburgh.
(The other members to be selected later by the Allegheny County Medical Society.)

PRESS COMMITTEE

William B. Ewing, Pittsburgh.
Cyrus Lee Stevens, Athens.
William H. Cameron, Pittsburgh.

SPECIAL COMMITTEES

COMMITTEE ON DEFENSE OF MEDICAL RESEARCH

(Subsidiary to the Committee on Public Policy and Legislation.)

James D. Heard, *Chairman*, Liberty National Bank Building, Pittsburgh.
W. M. L. Coplin, Philadelphia.
Joshua Edwin Sweet, Philadelphia.

COMMITTEE ON PROMOTION OF EFFICIENT LAWS ON INSANITY

(Subsidiary to the Committee on Public Policy and Legislation.)

Harry W. Mitchell, *Chairman*, Warren.
Lawrence Litchfield, Pittsburgh.
J. Allen Jackson, Philadelphia.

COMMITTEE ON ARCHIVES

Albert M. Eaton, *Chairman*, 2017 N. Thirteenth St., Philadelphia.
John Wesley Ellenberger, Harrisburg.
Thomas G. Simonton, Pittsburgh.

COMMITTEE ON QUARANTINE SERVICE AT THE PORT OF PHILADELPHIA

John W. West, *Chairman*, 1125 Wallace St., Philadelphia.
George Howard Cross, Chester.
Henry Lovett, Langhorne.

Commission on Conservation of Vision

(Subsidiary to Committee on Public Policy and Legislation.)

Samuel G. Dixon, *Honorary Chairman,* Harrisburg.

John F. Culp, *Chairman,* 410 N. Third St., Harrisburg.

Harry W. Albertson, Scranton.
William W. Blair, Pittsburgh.
Clarence M. Harris, Johnstown.
J. Ferdinand Klinedinst, York.
McCluney Radcliffe, Philadelphia.
Edward A. Shumway, Philadelphia.
Edward Stieren, Pittsburgh.

Commission on Medical Expert Testimony

(Subsidiary to Committee on Public Policy and Legislation.)

Joseph E. Willetts, *Chairman,* 1521 Spruce St., Philadelphia.

Americus R. Allen, Carlisle.
Francis P. Ball, Lock Haven.
John B. Carrell, Hatboro.
Henry W. Cattell, Philadelphia.
David N. Dennis, Erie.
Joseph Scattergood, West Chester.
Harvey F. Smith, Harrisburg.

Commission on Cancer

(Subsidiary to Committee on Health and Public Instruction.)

Jonathan M. Wainwright, *Chairman,* County Savings Bank Bldg., Scranton.

Donald Guthrie, Sayre.
James I. Johnston, Pittsburgh.
Joshua Edwin Sweet, Philadelphia.
Edward A. Weiss, Pittsburgh.

Committee on Medical Education

William L. Estes, *Chairman,* 805 Delaware Ave., South Bethlehem.

John B. McAlister, Harrisburg.
Cyrus Lee Stevens, Athens.

(And one member from each County Society.)

Members of House of Delegates, American Medical Association.

DELEGATES	Term Expires.	ALTERNATES DESIGNATE	Term Expires
Americus R. Allen, Carlisle	1917	Warren F. Klein, Lebanon	1917
William F. Bacon, York	1917	William P. Walker, South Bethlehem	1917
Wilmer Krusen, Philadelphia	1917	Alice M. Seabrook, Philadelphia	1917
Charles G. Strickland, Erie	1917	Robert B. Watson, Lock Haven	1917
Frederick L. VanSickle, Olyphant	1917	George G. Harman, Huntingdon	1917
David N. Dennis, Erie	1918	Luther B. Kline, Catawissa	1918
Edward B. Heckel, Pittsburgh	1918	George W. Wagoner, Johnstown	1918
John D. McLean, Philadelphia	1918	Samuel J. Waterworth, Clearfield	1918
Cyrus Lee Stevens, Athens	1918	Harry L. Whitney, Plymouth	1918

ALTERNATES AT LARGE

Theodore B. Appel, Lancaster	1917	Gordon M. Christine, Philadelphia	1918
Herbert B. Gibby, Wilkes-Barre	1917	Jesse R. Cooper, New Castle	1918
John A. Hawkins, Pittsburgh	1917	Theodore P. Simpson, Beaver Falls	1918
A. Ralston Matheny, Pittsburgh	1917	Lewis H. Taylor, Wilkes-Barre	1918
Charles W. Youngman, Williamsport	1917		

DISTRICT CENSORS

First District.—Chester County, Charles E. Woodward, West Chester; Delaware County, Daniel W. Jefferis, Chester; Philadelphia County, Milton B. Hartzell, Philadelphia.

Second District.—Bucks County, James N. Richards, Fallsington; Lehigh County, William B. Erdman, Macungie; Monroe County, Alvin A. Wertman, Tannersville; Northampton County, Edgar M. Green, Easton.

Third District—Berks County, Charles W. Bachman, Reading; Montgomery County, William McKenzie, Conshohocken; Schuylkill County, James A. Lessig, Schuylkill Haven.

Fourth District.—Dauphin County, Hiram McGowan, Harrisburg; Lancaster County, J. Henry Musser, Lampeter; Lebanon County, William M. Guilford, Lebanon.

Fifth District.—Adams County, J. Lawrence Sheetz, New Oxford; Cumberland County, Harry A. Spangler, Carlisle; Franklin County, Leslie M. Kauffman, Kauffman; York County, William F. Bacon, York.

Sixth District.—Huntingdon County, W. Hardin Sears, Huntingdon; Juniata County, William H. Banks, Mifflintown; Mifflin County, Alexander S. Harshberger, Lewistown; Perry County, E. Kenneth Wolff, Ickesburg.

Seventh District.—Bedford County, Edmund L. Smith, Schellburg; Fayette County, Jacob S. Hackney, Uniontown; Somerset County, Albert M. Lichty, Elk Lick; Westmoreland County, Robert L. Wilson, Jeannette.

Eighth District.—Allegheny County, George W. McNeil, Pittsburgh; Greene County, Harry C. Scott, Waynesburg; Washington County, Harry J. Repman, Charleroi.

Ninth District.—Beaver County, Jefferson H. Wilson, Beaver; Lawrence County, Robert G. Miles, New Castle; Mercer County, B. Edwin Mossman, Jr., Greenville.

Tenth District.—Crawford County, David C. Mock, Cambridge Springs; Erie County, John W. Wright, Erie; Warren County, William M. Robertson, Warren.

Eleventh District.—Elk County, Clarence G. Wilson, St. Marys; McKean County, A. Miner Straight, Bradford; Potter County, Elwin H. Ashcraft, Coudersport.

Twelfth District.—Butler County, John S. Campbell, Butler; Clarion County, David L. McAninch, Lamartine; Venango County, Jacob P. Strayer, Oil City.

Thirteenth District.—Armstrong County, Samuel A. S. Jessup, Kittanning; Indiana County, William H. Nix, Heilwood; Jefferson County, Spencer M. Free, Dubois.

Fourteenth District.—Clinton County, Joseph M. Carson, Chatham Run; Lycoming County, Alem P. Hull, Montgomery; Tioga County, Farnham H. Shaw, Wellsboro; Union County, Thomas C. Thornton, Lewisburg.

Fifteenth District.—Blair County, Joseph D. Findley, Altoona; Cambria County, William D. Haight, Johnstown; Center County, James L. Seibert, Bellefonte; Clearfield County, Harry A. Woodside, Lumber City.

Sixteenth District.—Bradford County, Charles M. Woodburn, Towanda; Sullivan County, Arthur J. Bird, Overton; Susquehanna County, William J. Condon, Susquehanna; Wyoming County, William W. Lazarus, Tunkhannock.

Seventeenth District.—Columbia County, Luther B. Kline, Catawissa; Montour County, James S. Hammers, Danville; Northumberland County, Lloyd M. Holt, Shamokin; Snyder County, R. W. Johnson, Selins Grove.

Eighteenth District.—Carbon County, John W. Luther, Palmerton; Lackawanna County, Frederick P. Hollister, Scranton; Luzerne County, Clarence W. Prevost, Pittston; Wayne County, Louis B. Nielsen, Honesdale.

MEMBERS OF THE HOUSE OF DELEGATES ANSWERING ROLL CALL

Allegheny County Society.—Christopher C. Hersman, Edward B. Heckel, Irwin J. Moyer, Stanley Smith, George C. Johnston, Alex. M. Stevenson, Henry C. Westervelt, Adolph Krebs, Willison H. McCombs, Milton Goldsmith, Amos W. Colcord.

Armstrong County Society.—Jay B. F. Wyant, Secretary; Howard M. Welsh.

Beaver County Society.—Jefferson H. Wilson.

Berks County Society.—Frank P. Lytle, Ira G. Shoemaker.

Blair County Society.—John B. Nason, President; Samuel C. Smith.

Bradford County Society. — Cyrus Lee Stevens, Secretary.

Bucks County Society. — William J. Wilkinson, President; J. Frederick Wagner.

Butler County Society.—Robert J. Grossman.

Cambria County Society. — Clarence M. Harris, President; John B. McAneny, Harry J. Cartin.

Carbon County Society. — Alexander Armstrong, President; Jacob A. Trexler.

Chester County Society.—William T. Sharpless.

Clearfield County Society.—Samuel J. Waterworth.

Clinton County Society.—Robert B. Watson, Secretary.

Columbia County Society.—Luther B. Kline, Secretary; John T. Macdonald.

Cumberland County Society.—Americus R. Allen, President; J. Bruce McCreary.

Dauphin County Society.—Jesse L. Lenker, Secretary; Clarence R. Phillips, John F. Culp.

Delaware County Society.—George L. Armitage, Jr.

Erie County Society.—Scott D. Gleeten, Secretary; David N. Dennis.

Fayette County Society.—James L. Cochran, Charles H. Smith.

Franklin County Society.—Frank N. Emmert.

Huntingdon County Society.—John M. Keichline, Jr.

Indiana County Society.—Alexander H. Stewart.

Jefferson County Society.—Norman C. Mills, Secretary; William F. Beyer.

Lackawanna County Society.—Harry W. Albertson, Secretary; Frederick P. Hollister, John J. Sullivan, Jr., Albert J. Winebrake.

Lancaster County Society.—Horace C. Kinzer, Secretary; Frank G. Hartman, J. Paul Roebuck.

Lawrence County Society. — William A. Womer, Secretary; Jesse R. Cooper.

Lebanon County Society.—Warren F. Klein.

Lehigh County Society.—George H. Boyer, President; R. Cornelius Peters.

Luzerne County Society.—Richard P. Taylor, President; Lewis H. Taylor, Harry L. Whitney.

Lycoming County Society.—Robert F. Trainer, Secretary; Edward Lyon.

McKean County Society.—William P. Burdick.

Mifflin County Society.—Benjamin R. Kohler.

Monroe County Society.—Elsie U. L. Longacre.

Montgomery County Society.—Edgar S. Buyers, Secretary; John Elmer Gotwals, Joseph K. Weaver.

Northampton County Society.—Walter D. Chase, Adam L. Kotz.

Northumberland County Society.—Horatio W. Gass, Secretary.

Philadelphia County Society.—John D. McLean, President; J. Montgomery Baldy, Clarence P. Franklin, Christian B. Longenecker, Herman B. Allyn, George W. Outerbridge, Gordon M. Christine, F. Hurst Maier, William H. Walsh, Kate W. Baldwin, Samuel Wolfe, Wilmer Krusen, William S. Wray, George A. Knowles, William D. Robinson, Samuel M. Wilson, Nathaniel S. Yawger, Thomas R. Currie, J. Norman Henry.

Schuylkill County Society. — Harry M. Wasley, President; Gouverneur H. Boyer.

Snyder County Society. — John O. Wagner, Secretary.

Susquehanna County Society.—John G. Wilson.

Tioga County Society.—William A. DeWitt, President; Farnham H. Shaw.

Union County Society. — Oliver W. H. Glover, President.

Venango County Society.—George B. Jobson.

Warren County Society.—Harry W. Mitchell.

Washington County Society.—John B. McMurray, Larry D. Sargent.

Wayne County Society.—Robert W. Brady, President.

Westmoreland County Society.—Myers W. Horner, Secretary; Harry W. Tittle.

Wyoming County Society.—Herbert L. McKown, Secretary.

York County Society. — John E. Meisenhelder, Joseph C. Atkins.

Presidents.—John B. McAlister, Charles A. E. Codman.

NONVOTING MEMBERS WHO WERE NOT SEATED FROM THEIR RESPECTIVE COUNTIES

George W. Wagoner, Treasurer; William L. Estes, Theodore B. Appel, John B. Lowman, Frederick L. Van Sickle.

MEMBERS IN ATTENDANCE AT THE SESSION IN SCRANTON, SEPT. 18, 19, 20 AND 21, 1916

SECTION ON MEDICINE

Allegheny County Society.—L. F. Ankrim, H. J. Benz, J. G. Burke, W. H. Cameron, M. Goldsmith, J. D. Heard, C. C. Hersman, J. I. Johnston, J. A. Lichty, C. E. Lindeman, L. Litchfield, E. E. Mayer, I. J. Moyer, H. C. Westervelt, J. M. Wilson, E. Zugsmith, Pittsburgh; J. H. Whitcraft, Wilkinsburg.

Armstrong County Society.—J. B. F. Wyant, Kittanning; H. M. Welsh, Leechburg.

Beaver County Society.—U. S. Strouss, Beaver.

Berks County Society.—F. P. Lytle, Birdsboro; T. H. A. Stites, Hamburg; H. P. Brunner, I. Cleaver, I. G. Shoemaker, Reading; A. H. Bauscher, Temple.

Blair County Society.—D. C. Confer, Duncansville; S. C. Smith, Hollidaysburg; W. L. Lowrie, T. Tobin, Tyrone.

Bradford County Society.—C. L. Stevens, Athens; G. Conklin, Orwell; J. E. Everitt, Sayre; F. Chaffee, Towanda.

Bucks County Society.—J. B. Carrell, Hatboro (Montgomery County); A. F. Myers, Blooming Glen.

Butler County Society.—R. J. Grossman, Butler.

Cambria County Society.—J. B. Woodruff, Johnstown.

Carbon County Society. — W. K. Kistler, J. A. Trexler, Lehighton; A. Armstrong, White Haven.

Center County Society.—C. S. Musser, Aaronsburg.

Chester County Society.—T. G. Aiken, Berwyn; F. H. Wells, Chester Springs; W. T. Sharpless, West Chester.

Clearfield County Society.—A. C. Lynn, Osceola Mills; G. A. Ricketts, Smithmill; S. M. Martsolf, Westover.

Clinton County Society.—G. D. Mervine, Bitumen; J. L. Lubrecht, R. B. Watson, Lock Haven.

Columbia County Society.—E. A. Alleman, J. H. Bowman, E. L. Davis, Berwick; G. F. Drum, Mifflinville.

Cumberland County Society.—J. B. McCreary, Shippensburg.

Dauphin County Society.—J. W. Ellenberger, J. L. Lenker, J. B. McAlister, C. R. Phillips, Harrisburg.

Delaware County Society.—J. W. Wood, Chester; J. H. Fronfield, Media.

Fayette County Society.—G. O. Evans, C. H. Smith, Uniontown.

Huntingdon County Society.—J. M. Keichline, Jr., Petersburg.

Indiana County Society.—A. H. Stewart, Indiana.

Jefferson County Society.—N. C. Mills, Eleanor.

Lackawanna County Society.—W. VanDoren, Archbald; M. L. Bailey, J. A. Kelley, F. C. Leonard, W. E. Loftus, M. E. Malaun, F. F. Price, Carbondale; T. A. Rutherford, Clarks Summit; H. O. Baldwin, Dalton; A. S. Cantor, J. W. Grant, Dickson City; C. DeMont, M. A. Gibbons, Dunmore; I. S. Graves, H. M. Kraemer, Jermyn; J. W. Lyons, Jessup; H. O. Rohrbach, Mill City (Wyoming County); W. A. Smythe, Moosic; J. W. Knedler, Moscow; E. T. Davies, J. L. Loftus, J. J. Timlin, Old Forge; J. J. Bendick, Olyphant; A. J. Davis, J. B. Grover, Peckville; J. C. Bateson, G. B. Beach, B. G. Beddoe, W. F. Bennett, H. Bessey, L. Breskman, C. G. Brown, F. G. Bryant, F. F. Budd, G. J. Berlinghof, J. J. Carroll, A. J. Connell, F. M. Davenport, P. J. Davies, E. Deantonio, J. P. Donahoe, J. N. Douglas, D. W. Evans, C. Falkowsky, Jr., W. G. Fulton, S. Gross, H. Halpert, P. J. Heston, H. V. Hower, D. J. Jenkins, T. W. Kay, J. F. Kelly, L. C. Kennedy, E. L. Kiesel, J. Kulozycki, J. D. Lewis, J. J. Lonsdorf, Jr., E. F. McGinty, J. A. Manley, C. E. Murrin, N. E. Newbury, J. E. O'Brien, M. F. O'Malley, W. A. Paine, W. A. Peck, J. S. Porteus, J. L. Rea, J. L. Rea, Jr., J. C. Reifsnyder, J. J. Roberts, J. I. Robison, T. B. Rodham, I. W. Severson, N. Silverstein, J. J. Sullivan, T. Sureth, J. Szlupas, G. VonPoswik, J. C. Wahl, F. R. Wheelock, M. J. Williams, J. D. Wilson, Scranton; A. E. Hager, E. E. Edwards, Taylor.

Lancaster County Society.—F. G. Hartman, H. C. Kinzer, C. D. Roop, J. M. Shartle, Lancaster; W. J. Leaman, Leaman Place.

Lawrence County Society.—J. R. Cooper, W. A. Womer, New Castle.

Lehigh County Society.—G. H. Boyer, E. W. Feldhoff, D. H. Parmet, R. C. Peters, W. C. Troxell, Allentown; W. A. Backenstoe, Emaus.

Luzerne County Society.—W. B. Foss, Ashley; J. C. Fleming, Dallas; H. M. Keller, J. C. Kochczynski, J. MacKellar, Hazleton; G. L. Hoffman, R. M. Lance, Kingston; M. C. Gaughan, J. A. Jennings, J. J. Madden, Pittston; G. R. Drake, Plymouth; N. R. Myers, Wanamie; T. F. Fleming, W. L. Hartman, West Pittston; G. R. Andreas, T. M. Baird, D. Barney, W. J. Davis, W. C. Dreibelbies, A. Kaufman, C. Long, C. H. Miner, W. C. Reese, J. I. Roe, W. C. Smith, L. M. Stoeckel, Wilkes-Barre; C. P. Knapp, Wyoming.

Lycoming County Society.—A. P. Hull, Montgomery; J. A. Campbell, G. R. Drick, H. G. McCormick, R. K. Rewalt, G. T. Ritter, R. F. Trainer, Williamsport.

McKean County Society.—W. P. Burdick, Kane.

Mercer County Society.—E. J. Hamborszky, Farrell.

Mifflin County Society.—C. H. Brisbin, Lewistown; C. M. Johnson, McVeytown; B. R. Kohler, S. H. Rothrock, Reedsville.

Monroe County Society.—C. S. Flagler, E. H. Levering, C. S. Logan, Stroudsburg; E. U. L. Longacre, Tannersville.

Montgomery County Society.—E. S. Buyers, Norristown; H. F. Smyth, Wayne (Delaware County).

Montour County Society.—E. A. Curry, H. B. Meredith, R. S. Patten, Danville: C. B. Mayberry, Retreat (Luzerne County); E. T. Williams, Riverside (Northumberland County).

Northampton County Society.—W. D. Chase, Bethlehem; E. M. Green, A. L. Kotz, V. S. Messinger, Easton.

Northumberland County Society.—H. W. Gass, G. G. Gill, Sunbury.

Perry County Society.—A. D. VanDyke, Renovo (Clinton County).

Philadelphia County Society.—S. G. Dixon, Bryn Mawr (Montgomery County); B. F. Royer, Harrisburg (Dauphin County); H. B. Allyn, H. S. Anders, J. H. Austin, M. A. Bowyer, C. W. Burr, J. W. Busch, A. Callahan, S. A. Carpenter, W. L. Clark, C. A. E. Codman, O. Copp, J. C. Doane, E. H. Erney, C. A. Fife, M. H. Fussell S. F. Gilpin, A. Hand, Jr., J. N. Henry, F. C. Hutton, H. D. Jump, T. C. Kelly, F. C. Knowles, G. A. Knowles, J. A. Kolmer, E. B. Krumbhaar, T. LeBoutillier, H. Lowenburg, J. B. Ludy, J. D. McLean, A. G. Mitchell, A. C. Morgan, W. S. Newcomet, F. D. Patterson, G. E. Pfahler, G. M. Piersol, M. E. Rehfuss, E. P. Reiff, J. H. W. Rhein, D. Riesman, W. D. Robinson, F. R. Starkey, A. Stengel, J. S. Tinker, W. H. Walsh, T. H. Weisenburg, S. Wolfe, F. Woodbury, N. S. Yawger, Philadelphia.

Schuylkill County Society.—G. O. O. Santee, Cressona; G. H. Boyer, Pottsville.

Snyder County Society.—J. O. Wagner, Beaver Springs.

Susquehanna County Society.—A. B. Fitch, Factoryville (Wyoming County); E. R. Gardner, J. G. Wilson, Montrose; A. E. Snyder, New Milford; D. J. Peck, Susquehanna.

Tioga County Society.—S. P. Hakes, Tioga; F. H. Shaw, Wellsboro.

Union County Society.—O. W. H. Glover, Laurelton.

Warren County Society.—H. W. Mitchell, Warren.

Washington County Society.—H. J. Repman, Charleroi; L. D. Sargent, Washington.

Wayne County Society.—R. W. Brady, L. B. Nielsen, Honesdale; W. B. Kenworthy, Milford (Pike County); W. A. Stevens, Scranton (Lackawanna County); S. A. Bang, South Canaan.

Westmoreland County Society.—E. B. Sloterbeck, Monessen; H. W. Tittle, New Florence; J. P. Strickler, Scottdale.

Wyoming County Society.—K. J. French, Factoryville; W. B. Beaumont, Laceyville; V. C. Decker, Nicholson; G. M. Kinner, North Mehoopany.

York County Society.—J. E. Meisenhelder, Hanover; J. C. May, Manchester; J. C. Atkins, Red Lion; G. E. Holtzapple, S. K. Pfaltzgraff, York.

SECTION ON SURGERY

Allegheny County Society.—S. A. Chalfant, J. H. Collins, R. E. Davison, W. P. Hughes, G. C. Johnston, W. H. McCombs, A. R. Matheny, W. A. Nealon, Pittsburgh.

Beaver County Society.—J. H. Wilson, Beaver.

Berks County Society.—J. M. Bertolet, J. W. Kauffman, Reading.

Blair County Society.—C. W. Delaney, J. D. Findley, W. H. Howell, Altoona; W. A. Nason, Roaring Spring; J. B. Nason, Tyrone.

Bradford County Society.—D. Guthrie, Sayre.

Bucks County Society.—J. F. Wagner, Bristol; F. B. Swartzlander, Doylestown; W. J. Wilkinson, Sellersville.

Cambria County Society.—V. J. Mulvehill, Carrolltown; W. M. Johnston, Emeigh; T. O. Helfrick, Spangler; J. B. Lowman, J. B. McAneny, G. W. Wagoner, Johnstown.

Carbon County Society.—J. W. Luther, Palmerton; J. B. Tweedle, Weatherly.

Chester County Society.—W. W. Woodward, West Chester.

Clearfield County Society.—L. F. Stewart, S. J. Waterworth, Clearfield.

Clinton County Society.—J. M. Corson, Chatham Run; F. P. Ball, Lock Haven.

Columbia County Society.—J. W. Bruner, J. T. Macdonald, C. B. Yost, Bloomsburg, L. B. Kline, Catawissa.

Cumberland County Society.—A. R. Allen, Carlisle.

Dauphin County Society.—J. B. Hileman, H. F. Smith, Harrisburg.

Delaware County Society.—G. L. Armitage, G. B. Sickel, Chester.

Erie County Society.—A. F. Eastman, S. D. Gleeten, C. G. Strickland, Erie.

Fayette County Society.—J. L. Cochran, Connellsville.

Franklin County Society.—W. F. Skinner, M. W. Stofer, Chambersburg; T. D. White, Orrstown.

Huntingdon County Society.—C. G. Brumbaugh, H. C. Frontz, J. M. Johnston, Huntingdon.

Lackawanna County Society.—W. H. Berge, Avoca; G. L. Higgins, W. S. Johnson, W. J. Lowry, J. S. Niles, J. J. Thompson, Carbondale; J. J. O'Connor, Dickson City; F. T. Cavill, Jessup; J. F. Kane, Minooka; W. W. Myer, Old Forge; W. H. Conway, R. J. Lloyd, F. L. Van Sickle, Olyphant; H. W. Albertson, T. L. Alexander, F. F. Arndt, D. E. Berney, R. Burns, D. A. Capwell, W. R. Davies, A. E. Davis, H. D. Gardner, L. M. Gates, L. P. Gibbons, H. Goodfriend, H. Houser, J. W. Houser, B. H. Jackson, P. F. Kerstetter, T. G. Killeen, P. C. Manley, C. B. Noecker, M. J. Noone, P. J. O'Dea, J. L. Peck, J. P. H. Ruddy, A. W. Smith, F. W. Stevens, E. Sturge, C. E. Thomson, J. M. Wainwright, R. T. Wall, J. N. White, R. V. White, A. J. Winebrake, B. B. Wormser, J. F. Zychowicz, Scranton.

Lancaster County Society.—T. B. Appel, J. L. Atlee, W. D. Blankenship, Lancaster.

Lawrence County Society.—J. Foster, L. W. Wilson, New Castle.

Lehigh County Society.—C. D. Schaeffer, Allentown.

Luzerne County Society. — W. F. Davison, M. C. Rumbaugh, F. D. Thomas, Dorranceton; W. Lathrop, Hazleton; L. Edwards, A. W. Grover, D. H. Lake, S. A. Ruffner, S. H. Rynkiewicz, C. L. Shafer, H. B. Wilcox, Kingston; J. W. Kirschner, M. E. Marvin, Luzerne; J. J. McHugh, Parsons; H. J. Lenahan, J. B. Mahon, C. W. Prevost, H. Rubenstein, Pittston; H. L. Whitney, Plymouth; A. C. Brooks, C. H. Ernst, S. L. Freeman, H. B. Gibby, M. C. Guthrie, J. T. Howell, J. Howorth, G. H. McConnon, W. J. McGuire, G. T. Matlack, S. P. Mengel, E. L. Meyers, C. H. Phillips, N. Ross, W. S. Stewart, R. P. Taylor, J. B. Tobias, S. M. Wolfe, Wilkes-Barre; A. B. Smith, Wyoming.

Lycoming County Society.—W. N. Shuman, Jersey Shore; E. Everett, Millville (Columbia County); J. W. Albright, Muncy; G. F. Bell, H. J. Donaldson, E. Lyon, Williamsport.

Mifflin County Society.—H. E. Miller, McAlevys Fort (Huntingdon County).

Montgomery County Society.—C. H. Mann, Bridgeport; W. G. Miller, J. K. Weaver, Norristown; J. E. Gotwals, Phoenixville (Chester County).

Montour County Society.—H. L. Foss, Danville.

Northampton County Society.—W. L. Estes, D. K. Santee, South Bethlehem.

Northumberland County Society.—J. E. Ratajski, Mount Carmel.

Philadelphia County Society. — H. K. Pancoast, Bala (Montgomery County); K. W. Baldwin, J. M. Baldy, M. Behrend, H. D. Beyea, J. B. Carnett, G. M. Christine, G. G. Davis, G. M. Dorrance, C. H. Frazier, C. H. Gray, L. J. Hammond, J. L. Herman, J. H. Jopson, F. E. Keene, E. R. Kirby, W. Krusen, E. Laplace, C. B. Longenecker, F. H. Maier, E. Martin, E. E. Montgomery, G. P. Müller, C. F. Nassau, G. W. Outerbridge, H. R. Owen, J. B. Roberts, J. T. Rugh, G. E. Shoemaker, J. Speese, T. T. Thomas, S. E. Tracy, W. S. Wray, Philadelphia.

Schuylkill County Society.—J. C. Biddle, Fountain Spring; W. T. Williams, Mount Carmel (Northumberland County); J. B. Rogers, Pottsville.

Susquehanna County Society.—A. J. Taylor, Hopbottom; A. J. Denman, H. D. Washburn, Susquehanna.

Tioga County Society.—W. A. DeWitt, Blossburg.

Washington County Society.—J. R. Maxwell, Washington.

Wayne County Society.—O. J. Mullen, Hamlin.

Westmoreland County Society.—M. W. Horner, Mount Pleasant.

SECTION ON EYE, EAR, NOSE AND THROAT DISEASES

Allegheny County Society. — A. W. Colcord, Clairton; J. E. Willetts, Philadelphia (Philadelphia County); G. E. Curry, D. W. Frye, E. B. Heckel, C. Jackson, A. Krebs, R. Milligan, S. Smith, A. M. Stevenson, H. H. Turner, V. E. VanKirk, E. E. Wible, Pittsburgh.

Berks County Society.—C. S. Keiser, Reading.

Blair County Society.—S. P. Glover, Altoona; D. F. Glasgow, Tyrone.

Bradford County Society.—N. S. Weinberger, Sayre.

Cambria County Society. — H. J. Cartin, C. M. Harris, Johnstown.

Carbon County Society.—C. J. Kistler, Lehighton.

Clinton County Society.—S. J. McGhee, Lock Haven.

Columbia County Society.—H. Bierman, Bloomsburg.

Dauphin County Society.—J. F. Culp, H. H. Farnsler, Harrisburg.

Delaware County Society.—G. H. Cross, Chester.

Erie County Society.—D. N. Dennis, Erie.

Franklin County Society.—F. N. Emmert, Chambersburg.

Jefferson County Society.—W. F. Beyer, Punxsutawney.

Lackawanna County Society. — U. G. Anderson, Carbondale; A. Stegner, Rendham; F. J. Bishop, J. B. Corser, F. A. Cross, G. E. Dean, C. L. Frey, F. P. Hollister, P. H. Kearney, J. C. Moyer, G. D. Murray.

J. E. O'Toole, E. L. Peet, L. G. Redding, W. M. Reedy, J. J. Sullivan, Jr., H. B. Ware, Scranton.

Lancaster County Society.—J. P. Roebuck, Lancaster.

Lebanon County Society.—W. F. Klein, Lebanon.

Lehigh County Society.—J. T. Butz, J. Lear, Allentown; O. C. Rieche, Hazleton (Luzerne County).

Luzerne County Society.—W. F. Danzer, Hazleton; U. A. James, Pittston; L. I. Blair, G. W. Carr, O. F. Kistler, N. L. Schappert, L. H. Taylor, Wilkes-Barre.

Lycoming County Society.—W. F. Kunkle, H. M. Ritter, Williamsport.

Monroe County Society.—W. R. Levering, Stroudsburg.

Montgomery County Society.—A. C. Herman, Lansdale.

Montour County Society.—R. Nebinger, Danville.

Northampton County Society.—P. H. Kleinhans, Bethlehem.

Northumberland County Society. — H. M. Becker, Sunbury.

Philadelphia County Society.—J. A. Babbitt, S. A. Brumm, R. Butler, B. Chance, G. M. Coates, T. R. Currie, L. Fisher, C. P. Franklin, B. C. Gile, H. M. Goddard, I. H. Jones, G. A. Lawrence, A. V. C. Mackenzie, G. W. Mackenzie, W. C. Posey, B. A. Randall, W. Reber, R. H. Skillern, W. Stirling, S. M. Wilson, W. Zentmayer, Philadelphia.

Schuylkill County Society.—G. R. S. Corson, G. H. Halberstadt, Pottsville; G. H. Moore, Schuylkill Haven; H. M. Wasley, Shenandoah.

Susquehanna County Society. — W. J. Condon, Susquehanna.

Venango County Society.—G. B. Jobson, Franklin.

Washington County Society. — F. C. Stahlman, Charleroi; J. B. McMurray, Washington.

Wayne County Society.—H. C. White, Ariel; E. O. Bang, South Canaan.

Westmoreland County Society.—A. B. Blackburn, Latrobe.

Wyoming County Society.—A. Beilstein, Meshoppen; H. L. McKown, Tunkhannock.

GUESTS

Walter B. Cannon, Boston; Samuel G. Gant, Rufus I. Cole, New York; John Price Jackson, W. S. Gimper, Harrisburg; Louis A. Klein, Philadelphia; Joseph W. Schereschewsky, Pittsburgh.

DELEGATES FROM SISTER SOCIETIES

Connecticut State Medical Society.—E. J. McKnight, Hartford; William H. Carmalt, New Haven.

Ohio State Medical Association. — T. H. Wilson, Dennison.

THE TRUTH ABOUT MEDICINES

NEW AND NONOFFICIAL REMEDIES

Barium Sulphate for Roentgen Ray Work.—Barium sulphate freed from soluble barium salts. This salt passes through the system unchanged and, because of this, is used in taking Roentgen ray pictures of the stomach and the intestines.

Barium Sulphate-Squibb, for Roentgen Ray Work.—A brand complying with the standards for barium sulphate for Roentgen ray work, N. N. R., E. R. Squibb and Sons, New York (*Jour. A. M. A.*, Oct. 7, 1916, p. 1091).

Chlorazene Tablets, 4.6 Gr.—Each tablet contains 4.6 grains chlorazene (sodium paratoluenesulphochloramine). The Abbott Laboratories, Chicago (*Jour. A. M. A.*, Oct. 21, 1916, p. 1229).

PROPAGANDA FOR REFORM

Nuxated Iron.—Nuxated Iron is advertised in newspapers with the claim that it is not a patent medicine or secret remedy. In the popular meaning of the words, "Nuxated Iron" is just as much a "patent medicine" as is "Peruna," "Lydia Pinkham's" or "Pierce's Favorite Prescription." Also, "Nuxated Iron" is essentially secret in composition. While the public is led to believe that the preparation consists chiefly of nux vomica and iron, analyses made in the A. M. A. Chemical Laboratory and elsewhere indicate that it contains much less than an ordinary dose of iron and practically no nux vomica. It is sold under claims that are both directly and inferentially false and misleading not only as regards its composition but also as regards its alleged therapeutic effects. Nuxated Iron is also advertised in the *Medical Brief*, a publication which has for its editor the "medical expert" for the Wine of Cardui concern in the recent case against the American Medical Association and as its publisher one who, through the *National Druggist*, has long been the mouthpiece of the "patent medicine" interests (*Jour. A. M. A.*, Oct. 21, 1916, p. 1244).

Patent Medicines Prosecuted Under the Food and Drugs Act. — The following information was brought out in connection with prosecutions by the federal authorities under that portion of the Food and Drugs Act which provides penalties against misleading, false and unwarranted therapeutic claims: Rayway's Ready Relief was claimed to relieve rheumatism, sore throat, pleurisy, pneumonia and other conditions. The government chemists found the preparation to be a hydro-alcoholic solution of oleoresin of capsicum, camphor and ammonia. Ingham's Vegetable Expectorant Nervine Pain Extractor was found to contain alcohol 86 per cent., opium alkaloids, camphor, capsicum and vegetable extractive matter. It was claimed that this morphine mixture was not only safe and harmless, but positively beneficial when given to teething children. Tetterine was said to be a marvelous remedy for tetter, eczema, etc. Maignen Antiseptic Powder according to the government chemists is composed essentially of calcium carbonate, borax, aluminum sulphate and sodium carbonate. Among other things the exploiters of this powder, which at one time was advertised to the medical profession, tried to persuade the public that the preparation would "sterilize" the stomach, throat, nose, lungs, etc. Green Mountain Oil or Magic Pain Destroyer was found to consist essentially of 95 per cent. linseed oil, with oil of sassafras, oil of thuja, and oil of turpentine, with possibly small amounts of camphor. According to the claims made on the trade package, this stuff was said to be "A Remedy for Diphtheria, Croup, Deafness and Sore Eyes, Rheumatic Pains, Stiff Joints, Pains in the Back" and many other ailments. Mrs. Joe Person's Remedy was found to be a slightly sweetened water-alcohol solution of vegetable drugs with a minute trace of alkaloids and the presence of podophyllin and sarsaparilla indicated. The preparation was claimed to cure such things as "blood poison," eczema, malaria and pellagra. Tutt's Pills were found to consist mainly of sugar, aloes, starch and calomel. The nostrum was sold under claims to the effect that it was "a remedy for intermittent and remittent fevers, dropsy, dysentery, diseases of the kidneys and bladder," and a number of other conditions (*Jour. A. M. A.*, Oct. 28, 1916, pp. 1316-1317).

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ADDRESS

CHAIRMAN'S ADDRESS *

J. WESLEY ELLENBERGER, M.D.
HARRISBURG

The purpose of our profession has ever been to diminish sickness and to relieve sufferers. As a result of medical efforts the average duration of human life has increased from twenty-five years in the sixteenth century to forty-seven years today. In the last decade the average life was increased one and four tenths years. If this ratio should continue for a century, the average lifetime would be sixty-one years,[1] an achievement of which to be proud indeed. In return, the physician has been accorded an honorable standing in the community and has had an enviable number of friends and lovers.

Concurrently with this increased longevity, and indeed responsible for it, has come a vast increase in medical knowledge. This knowledge is not confined to the leaders but is widely diffused so that the average practitioner of today is much better equipped than was his predecessor a generation ago. Yet his financial remuneration is less. This might be ignored except for the fact that changes in the practice of medicine are impending, or are already here, which, unless we become interested, may still further reduce the doctor's income.

These changes are such that in the near future the majority of physicians, who thus far have maintained a large degree of independence, will become either officers of the state or employees of the industrial corporations.

In addition, we must recognize the fact that the advances in medicine are so great that no one individual can acquire a working knowledge of them all. As a result we find many specializing in the various departments of medicine.

In the hospitals a patient may receive attention from an internist, a surgeon, a laboratory worker, a roentgenologist and an oculist, all of whom may consult with each other and aid in the formation of an accurate opinion based on the studies of the entire group. In private practice, the consulting of so many men proves to be too expensive for the average patient. Hence the common impression that the very poor receive the best service, the rich the next best, and the great middle class the poorest service.

The desire to overcome this condition is leading to the formation of groups of medical workers. Not rarely these men are associated primarily in hospital or dispensary charity work, and transfer their group work to their own offices. The speaker believes that an ideal arrangement would be for an internist, a surgeon, a laboratory man, an aurist, a dentist, and other "ists" to secure individual offices under the same roof. A waiting room might be used in common. The fees might be divided according to the amount of service, and in harmony with established fee charges.

An alternative would be the reference of all patients with obscure ailments to dispensaries or hospitals, not for free service, but for good service, for which they should pay.

The difficulties of rendering the most efficient service to the people of moderate means, or less, have been studied by the older governments of Europe and have led to many changes in the relationship between physicians and their patients.

The effort has been made to relieve the sufferer without pauperizing him. Usually the result has been much better service to the patient, and a diminished financial reward to the physician who has rendered it.

The changes in medical practice in Europe in recent years have been revolutionary, and have elicited much protest from the physicians. They have however apparently proved beneficial to the people. Similar changes may be expected in Pennsylvania.

Even now, the Workmen's Compensation Act is in force, under the guidance of our guest, Dr. Jackson, and has diminished distress from accidents. This act is based on the principle that a business should bear all of the expenses incident thereto, including those due to accidents. The necessity of providing hospital,

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* Delivered before the Section on Medicine of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 19, 1916.

[1] Wilmer R. Batt, State Registrar of Vital Statistics, Department of Health.

medical and surgical service is placed on the employer. The speaker believes that this act will diminish the incidence of accidents; also that it will lessen hospital abuse.

In his home town the corporations, among whose employees most of the accidents occur, have in the past sent their injured workmen to the hospital, where the corporation has paid the ward rate. The physicians and surgeons of the staff have rendered all necessary service without any pecuniary reward. Even though the injured man's income was two hundred dollars a month; even if it exceeded the physician's income, he received professional skill gratuitously. As a consequence the tendency became general to send injured persons to the hospital for free services. Even when brought to a physician's office there was often an expectation that no charge would be made.

As stated, the Compensation Act requires the employer to provide medical, surgical and hospital care for those injured in his service during the first two weeks following the injury. It also requires him to pay to the injured two thirds of his usual wage, beginning two weeks after the accident, so that many workmen should be removed from the charity list to the pay class. The fees provided are however much less than the physician is accustomed to receive from his private patients, and should be increased.

The Pennsylvania Department of Health under its hard-working head, Commissioner Dixon, has done an immense amount of work in the prevention of sickness, in the relief of sufferers and in helping physicians. The department has greatly diminished the incidence of contagious diseases by its comprehensive state-wide supervision of health. This has lessened the doctor's income, but has elicited no complaint; instead, he rejoices in the success achieved.

The department has relieved suffering by its sanatoria and dispensaries for the tuberculous, and by its free antitoxin for the poor. It has aided physicians by its experts, whom the family doctor may consult gratuitously when he has obscure ailments to combat. It also offers him free laboratory facilities. It does not seek free service, but pays the physicians who serve it.

The American Medical Association meeting in Detroit last May was the occasion for a number of papers bearing on the impending changes in the relations between physicians and patients.

Preceding this meeting, an entire day was devoted to discussions on industrial medical and surgical conditions by men who had been employed by corporations to improve the health of their employees. The spirit shown by these men was decidedly altruistic, and seemed to be a reflection of the genuine interest of big business in its workmen.

In these establishments the physician is called on to examine the workers, and to recommend them for tasks for which they are physically fitted. As an illustration, a husky lad with a leaky heart valve might be spared from the work for which a layman might have selected him, to his physical ruin, and given tasks that he could do without harm. Frequently the workman is unaware of his physical defect and is delighted when the physician tells him how it may be corrected.

The industrial physician has exceptional opportunities to educate employers, employees and the community along health lines.

The loss of time by workmen from illness is five times as great as from accidents. More than 50 per cent. of this absenteeism[2] is due to slight ailments. Proper instruction of the workers by the physician greatly reduces the incidence of these slight ailments and the consequent absences.

The industrial physician has a welcome access to the homes of the workmen, and may improve health conditions there. No matter how sanitary the shop where the workman spends eight to ten hours a day, its influence for good may be more than neutralized if the home is insanitary. Hence "big business" is interesting itself in the surroundings of the workmen during the entire twenty-four-hour period.

It is believed that these corporations may be convinced of the real value in dollars and cents of competent medical service, and that they will pay for it as they do for all other valuable commodities.

Abroad, the Workman's Compensation Act and Industrial Medicine have been the forerunners of health bills, old age pensions, maternity bills, etc. We may expect similar measures in this country. I understand that health bills will be offered to the legislatures of thirty-seven states in 1917.

Because they purpose to improve health, and because physicians are always foremost in such efforts, the American Medical Association, through its Judicial Council, has for years been actively engaged in a study of the health bills of Europe and in the proposed bills in this country.

At the Detroit session, the Committee on

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[2] J. B. Andrews, Ph. D., Amer. Assn. for Labor Legislation.

Social Insurance, a subcommittee of the Council on Health and Public Instruction, made a comprehensive report upon the subject which every member of this society might read with profit. The chairman of this subcommittee, Dr. Lambert, and other representative men, helped to draft the tentative American bill.

In Europe and in America these health bills are based on the theory that the health of the individual is a valuable asset to the government, and that it can best be conserved by government supervision.

This supervision is much greater abroad than anything we now have in America. The English health bill provides that all whose annual income does not exceed eight hundred dollars must join the national insurance.

The English physicians were in despair when it went into effect, believing that it meant their financial ruin. At first they refused to accept service, but when the government threatened to import physicians, and in some districts did import them, they very generally accepted the service, but protested that the financial returns were too small. Much bad feeling was aroused throughout the country.

The money returns are the least important part of a physician's recompense, hence the indifference of most medical men to financial questions. Hence, also, the fact that today medical men collect less than did their predecessors thirty years ago. This, too, notwithstanding the fact that a medical education costs twice as much in time and three or four times as much in money as it did then. Also notwithstanding the fact that a physician's equipment and the necessary expenses of his office are much greater now than then.

In my town the railroads secure physicians for less money than they are compelled to pay for engineers or conductors. The speaker believes that we should not be too negligent of our needs, and that we should encourage our representatives in their endeavors to secure a fair remuneration for our services.

The American bill, which it is expected will be offered in the Pennsylvania legislature next winter, provides that practically all manual workers, and all others whose remuneration does not exceed one hundred dollars a month, shall be insured. In return they will receive among other things medical and surgical care, and medicines without further payment.

Such an arrangement in a community like mine would embrace a very large proportion of the populace, so that the average physician would be deprived of his income unless he accepted the new service.

It has been suggested that a physician might serve about a thousand individuals. In the limited experience of the speaker, such a number would keep one busy at least ten and possibly twelve or more hours a day.

The tentative bill does not specify what money each physician should receive. The American Medical Association committee asks for help in fixing the amounts and the methods of payments. It asks each state medical society to appoint a committee to cooperate with it.

The committee's report gives the rate paid to physicians abroad. The amounts appear to vary from twenty-five cents per capita per annum to about two dollars. On the basis of a thousand patients at two dollars each, the doctor's income would be two thousand dollars a year.

Gentlemen, a great authority has stated that the laborer is worthy of his hire. While our primary effort must be the prevention of illness and the relief of sufferers, our secondary efforts should be to secure a fair financial return lest our ranks should be depleted or the quality of our service impaired.

The speaker surmises that this society, through its House of Delegates, will appoint a committee to cooperate with the American Medical Association committee in securing this desired return. If such action should be taken, every member should help by acquainting his neighbors with the real facts concerning the physician's income and expenses. An active propaganda, participated in by our members would surely bring gratifying results.

922 North Third Street.

ORIGINAL ARTICLES

OSTEOMALACIA*

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SYMPTOMS AND DESCRIPTION

Osteomalacia is very insidious in its onset. The patient first notices weakness and difficulty in going up and down stairs. There may be pains in the back, hips, or extremities, particularly on walking or other muscular exertion. There is also tenderness to pressure, and the muscles become more or less fatigued. It may be several years before a cane is necessary.

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* Read before the Section on Medicine of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 19, 1916.

Intercostal neuralgia is common. The patient complains of prostration, the pains are often worse at night, particularly the backache, and turning or moving in bed becomes very painful. The small joints of the feet and hands often become painful and deformed. In my case the fingers were distinctly of the drumstick or Hippocratic type, possibly from flattening through efforts at support while rising from a chair or moving in bed. The interphalangeal joints may suggest osteoarthritis. The large joints, such as the hips and knees, become more or less completely ankylosed. There is often spasm of the adductor muscles of the thighs. There is gradual bowing of the long bones of thighs and legs, and often spontaneous fracture. The patient's stature may be diminished by as much as thirteen inches.

The disease is usually intermittent for several years, is most commonly associated with child-bearing, coming on during pregnancy or lactation, and often entirely disappearing after lactation has been discontinued, to return with subsequent pregnancies. There may be five or six of these intermissions. At each return of the disease the symptoms are apt to be more severe and of longer duration until there is no remission after lactation, and the patient settles into a pitiable condition of almost helpless invalidism.

The bones of the spine become affected, the lower extremities are helpless and usually distorted by fractures, the patient is forced to take to her bed, and the use of the arms to support her and move about in bed is quickly followed by great deformity of the long bones of the arms and forearms, and of the clavicles, and frequently by fractures of the same.

The pelvis gradually undergoes quite characteristic changes, the pubic bones, yielding towards the mid-line of the pelvis, produce the "duck-bill" symphysis, while the pelvic strait, owing to the pressure of the sacrum and the softening of the ilia, is greatly narrowed, forming the so-called clover leaf pelvic entrance. By this time the bones have become so soft that they can be cut like an old automobile tire. In cases recurring with succeeding pregnancies, it often happens that while the first delivery is perfectly normal, each succeeding parturition meets with greater and greater mechanical obstruction, until cesarean section is required for the last.

The softening of the ribs causes them to yield to the action of the respiratory muscles with the production of a gradual flattening of the chest laterally, and a corresponding increase in the anteroposterior diameter, the most exaggerated form of pigeon-breast. In my case my hand spanned the patient's back, my thumb being in one axilla, while my second finger was in the other. This extreme deformity of the thorax is accompanied by great pain in the ribs and by a gradual abolition of the function of respiration with the development of cardiac embarrassment. The distress of an increasing dyspnea is added to the severe pain produced in the softened ribs with each breath by the contraction of the respiratory muscles.

Osteomalacia is divided by Schnell into two types. The first, or milder, recurs with repeated pregnancies, the skeletal changes becoming worse with each attack. This type shows a tendency to spontaneous recovery and yields readily to hygienic and medicinal treatment. The second type is progressive to a condition of marasmus. There is no tendency to spontaneous recovery, and according to Schnell, this type yields only to castration. Schnell says that these two types show respectively low and high grade regressive changes in the ovaries in the connective tissue and in the number of follicles, both macroscopically and microscopically. Out of fifty-six cases collected by Schnell there were seven nulliparæ. Osteomalacia happens about as often in males as it does in nulliparæ, but probably is not so often recognized because the gynecologist is more apt to be familiar with this disease than the general practitioner. There is a form of osteomalacia occurring in old people in which the softening may be confined to the spine and pelvis, progress rapidly for a time, and then gradually recover, leaving marked deformity. This is called osteomalacia senilis. Osteomalacia has been noted very rarely in young people, particularly in little girls, and has occurred in castrated women.

In studying the distribution of osteomalacia we are struck by the fact that it is very common in certain parts of Italy, especially Lombardy, in parts of Germany and of Switzerland. It is very rare in France and England, and probably still rarer in the United States. The distribution of the disease is the only striking argument in favor of an infectious etiology.

HISTORY AND ETIOLOGY

Osteomalacia has been known about 150 years, but Glissonius in 1650 published a description of rachitis, and this was probably not the first description of disturbed bone metabolism. The first theory to account for the changed condition of the bone attributed it to the presence of lactic acid in the blood (1847).

In 1886 it was attributed to carbonic acid. Liebig found that one liter saturated solution of carbonic anhydrid would dissolve 0.66 gram of bone salts. Levy in 1894 upset all the acid theories and the influence of acidity was proved very unimportant. The calcium in the bone was found to be diminished one third, but the proportion of phosphoric and carbonic acids was unchanged, and carbonates are more readily soluble in acids than phosphates. According to the theory of Virchow bone once formed was dead tissue like the nails and the hair, and in osteomalacia the lime was dissolved out chemically. Hoppe-Seyler in 1877 claimed that the chemical solution of the lime salts from the bone implied a higher acidity of the blood than was possible. In 1889 Cohnheim taught that bones were living tissue which was constantly undergoing anabolism and katabolism. It has also been pointed out by McCrudden that there is no evidence of acidosis in osteomalacia, and no evidence of osteomalacia in the most severe forms of acidosis which are met with, such as in diabetes mellitus. The theory that the acidosis of pregnancy causes the utilization of the calcium from the bones for the purpose of neutralization, thus occasioning puerperal osteomalacia seems very far fetched when we consider the need of calcium to produce the fetal skeleton and to supply the lime in the milk during lactation. Brinda in a case of osteomalacia found lactic acid in the urine (0.5 to 25 per cent., there is none normally) at the same time that the alkalinity of the blood was normal. He believed that calcium taken from the bones maintained the alkalinity of the blood. In his metabolism work he demonstrated a minus balance of mineral matter, calcium, magnesium, sodium and potassium. Urine and feces were both estimated.

Bouchard developed the hypothesis that the disease was due to a slowing of the metabolism which produced an excess of acids. Bonnamour and Bandolle designated osteomalacia, "a syndrome of decalcification from whatever cause." It has been claimed that this syndrome was due to disturbances in the nervous system, but cases with nervous manifestations are very rare.

Arcangeli reported in 1902-3 and 1908 details of the discovery of the *Diplococcus osteomalaciae hominis*. He claims that his discovery has been confirmed by six or eight other Italians, one of whom inoculated rats with pieces of bone from a case of osteomalacia, cultivated diplococcus from these rats, and inoculated other rats with these cultures, producing osteomalacia. Arcangeli claimed to have cured thirteen cases with vaccine. He claimed the same vaccine cured otosclerosis and rachitis, the latter of which he believes due to the same infection as osteomalacia. He believes the urine to be the means of infection, and women who care for rachitic children are most likely to be infected. His work has not been taken seriously by the medical profession in general, but it shows the frequent association of rachitis and osteomalacia in the same unsanitary environment.

We now come to the most interesting theories as to the etiology of osteomalacia, the relation of osteomalacia to the functions of the glands of internal secretion.

In 1879 Fochier did a cesarean section on a woman with well-marked osteomalacia. To prevent future conceptions and the consequent dangers of cesarean sections, he followed the practice common at that time of removing the uterus and ovaries. The woman promptly recovered from her osteomalacia. Fochier therefore recommended ovarectomy for the cure of osteomalacia which he attributed to a hyperactivity of the ovaries.

Fehling in 1894 reported several cures by this operation at his hands, and announced his belief that osteomalacia was due to disease of the ovaries, causing a sympathetic paralysis of the vasomotor system and a consequent hyperemia of the bones with the abstraction of the calcium, but eight different observers subsequently reported atrophic or cirrhotic conditions of ovaries removed from patients with osteomalacia. Castration nevertheless continued to cure the cases.

During this time Brown-Sequard was laying the foundation for the modern conception of the importance of the internal secretions.

Since osteomalacia could not be due to a hyperactivity of the ovaries, and yet was cured by the removal of the ovaries, it might be due to a lack of certain other internal secretions which were balanced (inhibited or counterpoised) by the internal secretion of the ovaries. Removal of the latter would under such circumstances increase the activity of the former, through removal of inhibition.

Striking relations between various glands of internal secretion and bone metabolism and bone pathology have been pointed out by many observers. The hypophysis, thyroid, and suprarenal glands have each been shown to influence calcium metabolism. Recall effect of thyroid on repair of fractures.

Adrenalin is said to increase normally during pregnancy ten or twelve fold; the hypophysis also hypertrophies during pregnancy. When it hypertrophies or hyperfunctions outside of pregnancy, we get gigantism or acromegaly (according to the age of the subject) syndromes exhibiting striking contrasts to osteomalacia. Possibly osteomalacia during pregnancy is due to failure of the normal hyperactivity of the suprarenals and of the hypophysis.

Phosphorus increases the iodin content of the thyroid and therefore increases the activating function of the thyroid on calcium metabolism. Unhygienic environment diminishes the iodin content of the thyroid, besides lowering the function of other glands.

Improvement has been reported in cases of osteomalacia from the use of serum of thyroidectomized goats and from the use of milk from ovarectomized goats. It is possible that removal of the thyroid or the ovaries may increase in the blood the products of the suprarenals. Good effects have been reported from the use of pituitrin which probably acts similarly to adrenalin or enhances effects of adrenalin. According to Bossi the adrenalin activates the deposit of calcium salts in the osteoid tissue, and he believes the ovaries or corpora lutea may inhibit the suprarenals.

The correlation of these facts, while it does not indicate a specific etiology for osteomalacia, points to the importance of a proper equilibrium in the interrelation of the various glands of internal secretion and would seem to place osteomalacia in the class with Basedow's disease, Addison's disease, acromegaly, cretinism, dystrophia adiposogenitalis, gigantism, diabetes, etc., etc.

Admitting then the controlling influence of the glands of internal secretion, let us consider this syndrome from another point of view. The bones are the storehouse for calcium, phosphorus, magnesium, etc. They are undergoing constant anabolism and catabolism. When calcium or calcium and phosphorus are needed to build up a fetal skeleton, or to supply the essential ingredients of mother's milk, to calcify cartilages, to repair fractures, or to build up bony tumors, these storehouses are drawn upon.

Men and other animals lose calcium from their bones during starvation just as they lose the products of the metabolism of other tissues. Osteomalacia may be artificially produced by feeding pregnant animals a diet poor in calcium.

F. H. McCrudden who has contributed more than any one else to our knowledge of bone metabolism has elaborated the theory that when these special calls arise for calcium, an unusual catabolism of bony tissue results, and if the mechanism of anabolism fails from any cause, the new osteoid tissue may be poor in calcium, phosphorus, etc., constituting osteomalacia.

In common with other observers, he describes a sort of inertia of function whereby a response to a stimulus which is slow to start is still slower to stop. Thus the bone goes on being catabolized after the calcium is not needed, and the excess of calcium in the blood stream is thrown off in the urine; another example of the well-recognized tendency in physiology to overproduction.

The rapid metabolism of the bony tissue of the pelvis in pregnant women, while it supplies the excessive demand for calcium, phosphorus, etc., for the fetus, and at the same time modifies in an important manner the rigidity of the pelvic outlet preparatory to parturition, may be regarded histologically as a physiological osteomalacia of the pelvis.

Osteomalacia then may be regarded as an exaggeration of the normal bone metabolism of pregnancy and lactation, with failure in the normal anabolism of the new bony tissue.

HISTOLOGY

In osteomalacia we find in the interior of the bone and near the haversian canals osteoid tissue (*i. e.* the organic matrix of bone without calcium). This osteoid tissue shows an abundance of osteoblasts and osteophytes and of Sharpey's fibers very similar to what is found in osteitis deformans. In rachitis on the other hand we find the osteoid tissue between the epiphysis and the diaphysis, and just beneath the periosteum.

As seen by the Roentgen ray the bones in osteomalacia (according to Brinda) may show a thinning of the cortex or a diminution in the density of the general bony structure.

CHEMISTRY AND METABOLISM

Several biochemists have analyzed bones which have been affected by osteomalacia. It is found that the amount of calcium is diminished and the amount of magnesium and sulphur is increased.

This is another argument against the theory of halisteresis (the removal of the calcium from the bones by chemical solution) for the magnesium salts are more soluble than calcium salts.

McCrudden has carried out very carefully conducted experiments in calcium metabolism under normal as well as pathological conditions. He finds that the organism sometimes substitutes magnesium for calcium when the latter is [illegible] +

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not supplied in sufficient amounts. He finds that a patient with osteomalacia makes good callus but that firm bony union does not take place. He noted in a case of osteomalacia a steady loss of calcium and phosphoric acid with a retention of magnesium and sulphur. The daily loss of calcium being from three to five times the normal, while the loss of magnesium was from one fifth to one half the normal. This patient was treated by ovarectomy and improved for a time. During this period of improvement McCrudden demonstrated a steady retention of calcium. He believes that during the progress of the disease the calcium set free by the catabolism of the bony tissue is eliminated, and the substance laid down in place of this bony tissue is poorer in calcium and phosphoric acid, and richer than normal in magnesium and sulphur. The theory was corroborated by the analysis of bones from horse and man, both subjects of osteomalacia.

DIAGNOSIS

The diagnosis of advanced cases offers no difficulty, but early cases will not be recognized unless the disease is borne in mind and its characteristics are familiar to the observer. Some confusion may easily arise in differentiating osteomalacia from rickets, from Paget's disease (osteitis deformans), osteoarthritis, and osteogenesis imperfecta (fragilitas ossium), and from scorbutus. These are all related diseases, associated with disturbance of bone metabolism. Indeed the specificity of these different affections is by no means proved. Their differences may be only qualitative.

In the case of rickets the osteoid tissue fails to calcify in a normal way, while in osteomalacia bone which has been perfectly formed becomes soft and yielding, and often fractures spontaneously. Rickets may be associated with osteomalacia or with osteogenesis imperfecta. The pain or tenderness in the ends of the long bones when they are handled or on movement in a case of scurvy may suggest a beginning osteomalacia, but the therapeutic test of an antiscorbutic diet quickly dispels any doubt. I have seen a case of osteoarthritis in a heavy woman characterized by marked bowing of the legs, with pain and marked tenderness to pressure and on movement. Osteomalacia was suspected, but the Roentgen ray showed a typical picture of hyperplastic osteoarthritis with absorption and erosion and condensation of the bony tissues but with no evidence of the rarefication of the bone which is so characteristic of osteomalacia. It must be borne in mind that both osteomalacia and osteoarthritis may show ankylosis of the large joints.

Paget's disease (osteitis deformans) is characterized by thickening of the skull with enlargement, dorso-cervical kyphosis, enlargement of the clavicle, broadening of the base of thorax, and bowing forward and outward of the long bones of the lower extremities, causing often a marked reduction in height, as in osteomalacia. McCrudden calls it a localized osteomalacia. I would call it a modified osteomalacia, the thickening and enlargement of certain bones causing the osteomalacia of others.

Kahler's syndrome (multiple myeloma of bone) may give similar symptoms at first, but the bones are not soft or brittle or flexible, the patient walks much longer, has myeolocytes in the blood picture, the tumors show in roentgenograms, and the bones soon show deformity. The Bence-Jones protein may be found in the urine of both diseases.

The Roentgen ray is of great value in recognizing the skeletal changes characteristic of osteomalacia.

TREATMENT

Treatment should be hygienic, dietetic, and remedial, medical, roentgenological, or surgical. An abundance of air and sunshine should be secured. Every effort should be made to favor normal calcium metabolism. It has been found in feeding at animal experiment stations that a shortage of phosphorus limits the utilization of calcium, and *vice versa*. White bread and polished rice are deficient in phosphorus. The low calcium content of cereals and other seeds may limit also the utilization of phosphorus. Butcher's meat, poultry, and green vegetables (roughage or fodder) are high in calcium. Fish is high in phosphorus and magnesium.

The preparation of infant food by milk modification on the supposition that we need to consider only protein, fat, and carbohydrate may cause serious trouble by starvation as regards calcium, iron, vitamins, etc. It is no wonder that these babes improve on emulsion of cod liver oil with lime, iron, and phosphorized oil. The use of phosphorus was for many years the accepted treatment for osteomalacia and occasionally striking successes were reported. However, after the experiences of Fochier and Fehling, castration began to be generally employed, and recently Schnell has collected and compared the results of these two methods of treatment between the years 1898 and 1913. He found 105 cases treated by castration with only 7 failures, while 37 cases treated solely by hygiene and phosphorus showed failure in the majority of the cases. As Schnell put it, with castration failure was the exception, while with the phosphorus treatment, cure was the exception. The average dose was 0.002 gram daily over many months.

In 1907 Bossi began to report wonderful results from the hypodermic administration of adrenalin (c.c. 0.5 to c.c. 1 of a 1 to 1000 solution once daily) over long periods, particularly in acute cases. Sometimes the treatment was interrupted by periods of rest, one or two weeks, after every nine or ten injections. He claimed that extirpation of one suprarenal in pregnant or nonpregnant animals led always to development of phosphaturia, osteoporosis—as shown by Roentgen ray—and other signs and symptoms of osteomalacia. He made his third report in 1912.

Schnell reviews 18 reports of the use of the Bossi method covering 32 cases of which 12 recovered. Of the 20 that failed to recover under adrenalin, several were subsequently cured by castration, and several by castration and more adrenalin.

It should be noted that some of the cases reported as failures under adrenalin received only 5 to 13 injections, while some of Bossi's most imposing cases received 70 to 150 injections.

Bossi reports cases in which after sterilization by Roentgen ray and finally castration, recovery did not take place until the adrenalin treatment had been inaugurated. Cavarzini cites 47 successful cases under the Bossi treatment. He begins with 0.2 gram adrenalin 1 to 1000, increasing the dose gradually in the course of two weeks to 1 gram and administers phosphorized oil at the same time.

Malaise, dizziness, headache, dyspnea, nervousness, and marked coarse tremor of hands and arms and legs may be caused by the adrenalin injection and persist for one to three hours. There may be danger of producing abortion. There is no beneficial effect from the administration of the adrenalin by mouth. The successes reported from the use of other organic products are insignificant, but the effects are interesting to the student of the internal secretions.

CONCLUSION

It would seem that at the present time the rational procedure in a case of osteomalacia should be an attempt to secure the best possible hygienic environment, a generous diet, rich in phosphorus and calcium, the avoidance or termination of lactation, the avoidance of pregnancy, adrenalin therapy, and if no improvement is noted, sterilization of the patient by Roentgen ray, and if still no improvement, ovarectomy, possibly followed by a return to the administration of phosphorus and the hypodermic use of adrenalin.

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CHEMICAL DIAGNOSIS OF GALLBLADDER DISEASE [*]

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The gallbladder can be both directly and indirectly accessible to investigation. We can palpate the organ in a certain proportion of pathological cases. Evidences of peritoneal inflammation become readily apparent by means of the examination of the organ, but the evidence of infection, the presence of concrements and stone and the evidence of disease of its appendages, the gall ducts, can only be obtained by indirect observation. The old method of physical examination, clinical history, the presence or absence of jaundice may enable one to correctly diagnose many cases. In a great many more, thanks to the progress in this branch of internal medicine, we are enabled to obtain precise information.

In the study of gallbladder disease, and especially stone, we have at our command the following means of investigation: (1) We can obtain direct evidence in the blood serum of an increase of cholesterol which seems to be a necessary etiological factor in the formation of stone. At least in the opinion of Chauffard and his associates and in our experience cholelithiasis in the great majority of instances is accompanied by a definite hypercholesterolemia. The knowledge of this fact enables us to use this method in the differential diagnosis of that disease from other abdominal conditions. (2) We can directly intubate the duodenum by means of the duodenal tube; obtain the bile as it is poured out of the common bile duct and examine this fluid chemically and microscopically as well as bacteriologically. (3) We can examine the feces for intact fat digestion and satisfactory bile content or for the perversion of bile flow and disturbances in the mechanism of fat digestion. (4) We can observe carefully the simultaneous absorption of bile in the blood serum and its excretion in the urine and compare it with the daily variations or its partial or complete absence in the bowel movements.

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[*] From the Department of Medicine of the Jefferson Medical College.

[*] Read before the Section on Medicine of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 20, 1916.

Today we are brought face to face with a rather new aspect of gallbladder disease. We know that the bile excreted plays not merely an important part in the metabolism of fats, but that it has also a very important eliminative function; we know that apparently in certain conditions, particularly in cholelithiasis, there is a distinct increase in the cholesterol content of the bile which reverts back to apparent hepatic and systemic disturbances in which there is an accumulation of this substance in the system; and finally another important point is the frequency of gallbladder infection when observed from the double viewpoint of infection of the bile itself and the by no means infrequent occurrence of a hematogenous infection of the gallbladder. The elective localization of certain bacteria as pointed out by Rosenau finds here an eloquent explanation for the many evidences of old gallbladder inflammation seen at operation.

The point which concerns us in this report however is the consideration of cholesterol increase in the serum as an important etiological factor in stone formation. This work of the French school is so pregnant with possibilities that a brief résumé is not out of place at this point. Chauffard and his co-workers believe that not merely infection and stasis are important etiological factors in stone formation, but that another and probably the most important factor is an increase in the cholesterol content of the serum. This increase can occur in two ways, exogenous by the ingestion of cholesterol rich food and endogenous in which the suprarenals and the corpora lutea in women are supposed to play an important rôle. For instance in their studies the frequency of cholelithiasis in patients who have had typhoid fever is explained by the fact that in the former condition the hypocholesterolemia during the febrile stage was succeeded by hypercholesterolemia and he points out the fact that an excess of cholesterol appears with the induction of immunity. During the last two months of pregnancy there is almost always an increase of serum cholesterol which drops after delivery only to rise and not reach a normal figure until two months have elapsed. The corpora lutea he considers a temporary adenomatous gland cholesterologenic in that it can produce cholesterol while the suprarenal represents the permanent gland, an example he says of "symbiotic pluriglandular function."

Principle number two is the fact that there is not merely an increase in serum cholesterol due to endogenous or exogenous factors, but there is likewise an increase in the vesicular bile, an important link in the chain of evidence necessary to incriminate an hypercholesterolemia as a causative factor in the production of stone. Chauffard believes that it is necessary to search for the cause of trouble in the liver cell and that it is necessary to believe that blood cholesterol is eliminated by the liver in part as cholic acid. After Grigaut it is the cholic acid which forms with the taurins and the glycocolls and the bile acids. If therefore the cholic acid is due to the transformation of cholesterol by the liver, the hypercholesterolemia of hepatic cases should have for its consequence a diminution of bile salts in the organism, and it is known that in icterus the quantity of bile salts is markedly lowered.

Grigaut's conclusions are as follows: Hypercholesterolemia, by retention, and the diminution in the production of cholic acid are two states connected occasionally by one and the same cause, namely a disturbance in the elimination of cholesterol by the liver, and the pathogenesis of biliary calculus might be formulated as follows: hypercholesterol plus the consecutive diminution of cholic acid in the bile." The steps are (1) hypogenesis of biliary salts, that is to say the principal agents for keeping the cholesterol soluble in the system, (2) cholesterol retention in the serum, (3) biliary hypercholesterolemia and the tendency toward the precipitation of the excess of cholesterol insufficiency maintained in solution in the gallbladder. The evidence of increase in the vesicular bile has been contributed by McNee in Aschoff's laboratory.[1]

By the method of Autenreith and Funk, we began a systematic investigation into both gallbladder and other disturbances of which the actual statistics as well as the literature on this subject will be found. In an examination of over eighty cases in all, thirty-six of which were those of cholelithiasis and more than two thirds of this group confirmed by operation, we found in all but three cases a definite increase in serum cholesterol over the accepted normal figure of 1.60-1.80 gram per 100 cubic centimeters of serum. We found an increase usually slight in several conditions other than cholelithiasis, but in all gastro-intestinal conditions we found universally normal or subnormal findings. In the first series of thirty-nine cases about to be published in detail every case of operatively demonstrable stone gave an increased cholesterol content of the serum, while in four cases where the surgeon's diagnosis was cholelithiasis and our figures revealed normal or subnormal findings, operation failed to disclose stone. In a second series of more than forty cases, several cases of operatively demonstrable stone came to our notice in which there was definitely demonstrated and controlled a normal or subnormal finding. The only explanation for this, compatible with the fact that in one of these cases the stones were practically pure cholesterol stones, is the fact that it is possible to have an existing hypercholesterolemia during stone formation, which disappears later under diet or a disappearance of the causative factors inducing increased cholesterol formation. In one instance of a clinically diagnosed cholelithiasis, a cholesterol low diet reduced blood cholesterol from 320 milligrams to 180 milligrams per 100 cubic centimeters of serum.

As pointed out in the differential diagnosis between duodenal ulcer, gastric ulcer, adhesions, appendicitis and cholelithiasis, the latter condition is the only one giving an increase of cholesterol in the serum. It must however be realized that there is a certain proportion of old cases, in our experience very small, in which there is no demonstrable increase of cholesterol in the serum, but where presumably periods of hypercholesterolemia have occurred. It has been likewise claimed that increased cholesterol findings occur in nephritis, diabetes, arteriosclerosis, syphilis, and jaundice, and various skin diseases, as well as after typhoid fever and during certain periods in pregnancy. It is to be pointed out that hypocholesterolemia has been observed in the newborn, in infectious diseases during the height of fever, acute anemia, hematogenous jaundice, septic processes, chronic ulcer, cancer, tuberculosis, liver affections without jaundice, and in the jaundice free periods of liver cirrhosis. Normal cholesterolemia has been observed in gastric catarrh, and in chronic diseases not accompanied by an elevation of temperature. Bearing these facts in mind, it becomes evident that the determination of blood cholesterol can be of great diagnostic value if the above points be borne in mind.

The knowledge of the rôle which cholesterol plays in the etiology of stone formation has an exceedingly important bearing on the question of the treatment of this condition. Medically it has given rise to the cholesterol low diet, a diet which is poor in lipoids, fatty meats, the fatty fish, and particularly eggs, as well as certain members of the vegetable kingdom, like peas, which contain phytosterol, an isomere of cholesterol and capable of being transformed into cholesterol in the system. Surgically the question of the removal of gallbladder seems to be the only guarantee for prevention of calculus reformation inasmuch as drainage, as commonly employed, simply aids the question of infection but does not remove one of the vital factors of stone formation, namely, the hypercholesterolemia. It therefore becomes an important problem in all cases where drainage alone is practicable to keep these patients on a diet poor in cholesterol so as to lessen as far as possible the likelihood of further trouble. It is likewise surprising to note the favorable results obtained in cases of undoubted cholelithiasis when submitted to this diet which is the only rational one for the treatment of such a case.

DUODENAL INTUBATION

Einhorn, Crohn, and others have pointed out the possibilities of the direct intubation of the duodenum and the examination of the bile obtained in the diagnosis of gallbladder disease, and it is my belief that in all suspicious cases this method will eventually become a routine procedure. For about a year in almost all gallbladder cases we have performed duodenal intubation and obtained the bile directly from the duodenum. I have used my fractional tube which serves every purpose, but quite recently I have devised a special tip which is still more satisfactory and which enables the operator to aspirate material from the duodenum with a minimum of risk to the duodenal mucous membrane and at the same time evacuate more completely the duodenum. This olivary tip contains perforations only at the shoulder and tip and is very easily swallowed.

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[1] Deutsch. Med. Woch., 22, May, 1913, p. 994.

Our first method of examination was simply a search for enzymes and a microscopical examination of the material extracted. Turbid bile obtained by the method which we employ is comparatively infrequent. In these cases, I pass the tube with a simple Ewald meal in the morning on the empty stomach. After obtaining information regarding gastric function, more of the tubing is swallowed; the patient is turned on the right side with the pelvis well tilted and the left leg thrown over the right and if possible the left shoulder rotated forward and to the right; plain water is then given or some liquid aspirated at intervals until the tip has reached the duodenum. As soon as bile-tinged material is obtained, plain water is given and the material slowly aspirated until a pure, uncontaminated sample is obtained. With the tip in the duodenum, the specimen changes in appearance, showing the passage of water, often colorless or only slightly tinged, to be followed at intervals by the strongly tinged liquid and then the pure pancreatic and biliary secretion. In this way it is possible to obtain a pure secretion absolutely free from food débris.

If the syphon method of Bondi be employed, it is possible to notice distinctly the changes in viscosity. In over fifty cases of duodenal intubation comprising various gastric, duodenal. hepatic, gallbladder and liver conditions as well as in the study of external pancreatic function in diabetes, turbid bile was comparatively rare. The explanation of clear bile in the presence of stone was shown by operation in at least five cases to be due to the fact that the stones existed in a gallbladder which gave no gross evidence of infection and in which they were immersed in clear bile. Pus was found in two cases, both angiocholitis with fever and both accompanied by bacteria. In the ordinary cases of cholelithiasis with interval colic and no infection of the ducts, the number of leukocytes was not sufficient to justify its being called pus, although culture in these cases as we have practiced recently usually reveals micro-organisms. We have been surprised to obtain almost constantly a culture of the colon bacillus with such frequency that we attach little importance to the finding. Pyogenic organisms are distinctly less frequent, although the staphylococci are frequently found in duct infections. In one case in which there had been repeated drainage of the common bile duct with little success and in which evidences of infection continued, the pyocyaneus was isolated on three separate occasions and a vaccine was made. Owing to marked adhesion formation however, the results in this case were not satisfactory. The difficulty of adequate sterilization is a factor which must always be taken into consideration. In stone, in spite of marked jaundice, it is almost always possible to find traces of bile coming through; in two cases of neoplasm there was an absolute shutdown of bile flow and in one case we were unable to obtain any evidence of lipolytic or tryptic activity. Certain points are worthy of careful consideration. There is certainly a difference in the viscosity of the bile which might be measured by the drop method. In infection of the ducts this method is of real value.

Examination of the feces is by no means to be neglected in the study of gallbladder cases. The quantitative determination of unconsumed protein, carbohydrate and fat are methods which presuppose an exactly weighed diet, demarcation of the feces, and laboratory procedures which are too time-consuming for routine clinical work. In a certain very small number of cases this method has been followed in the determination of fat but, in the ordinary clinical case, we simply make a microchemical study of the movement, bearing in mind the character of the diet and then placing the patient on a modified Schmidt diet and determining the character of the movement. Its gross characters are noted, the presence and type of mucus; whether accompanied by microscopical evidence of inflammation, blood, pus, or mucus; the character of meat digestion and the degree of digestion of its fibers; the presence of neutral or combined fats, fatty acids, and total fat; and the evidences from the iodin reaction of undigested starches and the large organisms seen in deficient starch digestion. We can in this way determine in a rough manner the presence of gross anomalies in the digestion of various foodstuffs and the type of condition with which we must deal. It is surprising, after examining a number of stools, how easy it is to become familiar with slight variations in the fat content for instance. I have examined many thousands of stools and in no gastro-intestinal case do I omit this important procedure. I have instructed other men in our laboratories to watch these findings and they have no difficulty in determining comparatively slight changes in character of the movement. The formula of duct obstruction is of course acholic stools with an enormous increase in neutral fat, if both ducts are blocked; and acholic stools with a great increase in split fats or fatty acids and neutral fats if the bile duct alone is occluded.

Pancreatic insufficiency shows anomalies in all three varieties of foodstuffs, gallbladder and hepatic disturbances merely affecting as a rule fat digestion. In our studies hepatic insufficiency as shown by deficient fat digestion and insufficient bile elimination is exceedingly frequent in cholelithiasis and a study should always be made of the comparison between systemic absorption of bile, its presence in the skin and conjunctiva and in the urine and a comparison of these findings with the evidences of diminished elimination of bile in the feces. Hemolytic jaundice and the biliary or hypertrophic cirrhosis of the liver show clearly in spite of jaundice by both duodenal intubation and fecal studies the presence of bile, a point of considerable importance from a diagnostic standpoint.

CONCLUSIONS

1. We have at our command in the study of gallbladder disease three important methods of value apart from the data elicited in the history and physical examination, namely the study of the blood serum from the standpoint of its cholesterol content, duodenal intubation, and an examination of the feces with a view toward noting particularly disturbances in bile elimination and fat digestion.

2. In the great majority of cases of cholelithiasis there is an increase of the cholesterol content of the serum which is of diagnostic importance and which is found in other conditions frequently mistaken for this disease.

3. The necessity of altering our conceptions of cholelithiasis is emphasized and in the treatment of gallbladder conditions in which stone is suspected, a cholesterol low diet should be instituted.

4. Duodenal intubation is an important practical procedure which should be employed routinely in all gallbladder cases and which in selected cases is capable of giving direct evidence of infection as well as information regarding pancreatic function.

5. A microchemical study of the feces is to be made in every case with special reference to disturbances in fat digestion which are usually met with in gallbladder disease.

6. In arriving at a diagnosis, all data should be correlated and if necessary an analysis of other organs can be performed so as to rule out conditions presenting a similar symptomatology.

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THE VALUE OF SPLENECTOMY IN DISEASES OF THE BLOOD*

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Splenectomy for rupture or severe injury of the spleen is one of the oldest abdominal operations about which we have definite knowledge.[1] It was not until the advent of anesthesia and the greater surgical skill of the nineteenth century, however, that it was found practicable to remove the chronically diseased organ and thus widen the field of applicability of the operation beyond that of surgical emergencies. Unfortunately, among the chronic diseases of the organ first attacked were the enlargements incident to cirrhosis of the liver and leukemia. The unfavorable results in these two diseases cast discredit upon the operation; but nevertheless, in 1900, Bessel-Hagen[2] was able to collect 216 cases of total extirpation of the spleen with 72 deaths. If the cases of leukemia are subtracted, the deaths in the list are reduced to 34, or a mortality of 15.5 per cent. Since 1900, our greater knowledge of the physiology and pathology of the spleen has resulted in a better selection of cases, so that now the total mortality has been still further reduced (Laspeyres.[3] Michelsson[4]).

In the past three years, a more active study of the surgical treatment of certain so-called primary anemias has led to the much wider employment of splenectomy, and it is this application of splenectomy that attracts most attention at present.

Contraindications.—It is most important to know when splenectomy should not be done. We now know that in certain diseases, removal of the enlarged spleen is definitely contraindicated. These include the various forms of leukemia, polycythemia, malaria, atrophic cirrhosis of the liver and most cases of tuberculosis and syphilis. In the hypertrophic form of cirrhosis, Eppinger has recently advocated splenectomy on account of the evidences of increased blood destruction in this disease, but in the ordinary atrophic forms it certainly should not be attempted. Too much emphasis cannot be laid on the necessity of ruling out atypical forms of leukemia before the splenectomy is undertaken, but on account of the great variety of aleukemic conditions, this is often an extremely difficult task. In no case, however, should splenectomy be advised until the blood picture has been carefully studied over an extended period of time, and the presence of leukemia excluded as far as may be possible.

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* Section on Medicine of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 21, 1916.

[1] Krumbhaar, E. B.: The History of the Extirpation of the Spleen, New York Med. Jour., 1915, ci, 232.

[2] Bessel-Hagen, F.: Arch. f. klin. Chir., 1900, lxii, 188.

[3] Laspeyres, R.: Centralb. f. d. Grenzgeb. d. Med. u. Chir., 1904, vii, 1.

[4] Michelsson, F.: Ergebn. d. Chir., u. Orth., 1913, vi, 480.

Anything pointing toward a hemorrhagic diathesis should also be given careful consideration. Its presence is, as a rule, sufficient to contraindicate operation, although the repeated hemorrhages from varices due to other mechanical causes, as in Banti's disease, are more indications for operation than otherwise.

TABLE 1.—COLLECTED REPORTS OF SPLENECTOMY IN BLOOD DISEASES

Disease	Author	No. Cases	Recovered	Died	Mortality, %
Gaucher's	Erdmann and Moorhead[5]	10	8	2	20
Banti's.............	Isaac[6].........	49	41	8	16.3
Hemolytic icterus, acquired	Elliott and Kanavel[7]	16	15	1	6.2
Hemolytic icterus, congenital and familial	Elliott and Kanavel[7]	23	22	1	4.3
Hemolytic icterus, unclassified	Elliott and Kanavel[7]	9	9	0	0
v. Jaksch's.........	Graff[8].........	2	2	0	0
Pernicious anemia..	Krumbhaar[9]..	153	123	30	19.6

In the severer anemias definite signs of bone marrow activity should also be forthcoming (nucleated or reticulated cells, Jolly bodies, etc.). If they cannot be provoked by appropriate drugs or by transfusion it is probable that the marrow is aplastic and splenectomy should not be attempted.

That the removal of the normal spleen is followed by a temporary anemia has been proved both by clinical observation and animal experimentation; but this should not be considered a contraindication to operation. We have the apparent paradox that while removal of the normal spleen causes a temporary anemia, removal of the spleen in certain blood diseases relieves the existing anemia.

Diseases in Which Splenectomy Is Indicated.—In certain groups of disease, splenectomy has met with considerable success: as in Banti's disease, Gaucher's disease, the congenital and acquired forms of hemolytic jaundice and, to a lesser extent, pernicious anemia. The cause of the improvement or cure that follows splenectomy in these conditions is but poorly understood. It is probably different in the various diseases mentioned, but a discussion of this problem cannot be undertaken here.

Banti's Disease.—In Banti's disease, it is important that the operation should be undertaken before the disease has progressed beyond the first stage. Splenectomy in the first stage is not only accompanied by a low mortality, but in the great majority of cases has caused great and lasting improvement of symptoms, often amounting to a complete cure. When the third stage is reached, with permanent changes in the liver and circulatory system, not only is the operation more dangerous, but the chances of improvement are greatly lessened. As a result of the disease process, the spleen has by this time become largely fibrotic, and its removal could hardly be expected to be attended with marked beneficial effect. Cases have been reported, however, where improvement followed splenectomy even at this late stage.

In 1912, Isaac[6] collected forty-nine cases with a mortality of 16.3 per cent. With the better understanding of the disease and its treatment that has come about since that time, it is safe to say that the mortality percentage for Banti's disease is now considerably lower. A patient then, with the symptoms of Banti's disease, particularly if in the early stages of the disease, should be considered a proper candidate for splenectomy, but the most favorable time for operation should be selected. Before undertaking the operation all other possible causes for such a syndrome (e. g. aleukemia, leukemia, tuberculosis, malaria, syphilis, etc.) should be ruled out as far as possible by a complete, but not unnecessarily prolonged, investigation as to the cause of the disease, with frequently repeated blood examination.

Gaucher's Disease.—On account of the rarity of this condition and the difficulty of diagnosis without the aid of histological examination, not many cases are available for study. In 1914, Erdmann and Moorhead[5] collected ten cases of large-celled splenomegaly (Gaucher's Disease), in which the spleen had been removed and of these, two died, both within twenty-four hours of operation. While this probably represents too high a mortality, the improvement which followed in the other eight cases cannot always be taken as indicative of eventual cure, for the disease is known to exist independently in the bone marrow and lymph nodes. It would therefore seem wiser to restrict splenectomy in this disease to those cases that are unusually handicapped by the results of the disease, but are still good surgical risks, and in such cases to limit the prognosis to improvement but not complete cure.

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[5] Erdmann, J. F., and Moorhead, J. J.: Amer. Jour. Med. Sci., 1914, cxlvii, 213.

[6] Isaac, S.: Schmidt's Jahrb., 1912, cccxv, 14.

[7] Elliott and Kanavel, A. B.: Surg., Gynec. and Obst., 1915, xxi, 21.

[8] Graff: Verhandl. d. deutsch. Gesellsch. f. Chir., 1908, xxxviii, i, 248; and discussion, p. 252.

[9] Krumbhaar, E. B.: Jour. A. M. A., 1916, lxvii, 723.

Hemolytic Jaundice.—The field in which splenectomy has been practiced with the greatest success is undoubtedly that of hemolytic jaundice. Both in the acquired form (Hayem-Widal) and the congenital or familial type (Chauffard-Minkowski) marked improvement and frequently complete cure have resulted from removal of the spleen. In fact, the success obtained in this type of case, where the chief vitium is that of increased blood destruction, has been a powerful incentive toward extending the operation of splenectomy to the wider range of allied diseases discussed in this chapter. Splenectomy was first recommended in this group by Banti for a condition to which he had given the name, "Hemolytic Splenomegaly." Success was obtained in all the earlier operations (Banti, Micheli, Kahn, Roth) and the procedure would undoubtedly have been in more frequent and intelligent use, in this country as well as Europe, if the several clinical entities, unfortunately grouped together under the cloak of "Splenic Anemia," had not clouded the worth of the procedure. In 1915, Elliott and Kanavel[7] were able to collect forty-eight cases of hemolytic jaundice (sixteen acquired, twenty-three familial and nine unclassified) that had been treated in this way. Of the forty-eight cases, only two died, one shortly after operation, the other from sepsis, six weeks after operation. The other forty-six are reported as "cured," this result being based upon the disappearance of jaundice and exacerbations, and decrease of the anemia and the urobilin excretion. The effect on the resistance of the red cells was not constant; in some instances the resistance returned almost to normal, but in most cases the red cells remained almost as fragile as before operation.

Pernicious Anemia.—The most important disease to which splenectomy has been applied, from the point of view of its greater frequency and greater severity, is pernicious anemia. The first attempts were made independently by Eppinger and von Decastello in Vienna in 1913, and were shortly followed by Klemperer in Berlin in the same year, and soon after on account of the initial improvement observed, by a large number of surgeons all over the world. Although it is still too early to proclaim any definite decision as to the value of splenectomy in pernicious anemia, it has already become possible to base opinions on substantial evidence.

I[9] have recently collected the results in 153 cases treated in this manner. In thirty instances death occurred either immediately or within six weeks of the operation. Of those surviving the operation, nearly all showed a marked improvement both clinically and in the blood picture. The so-called "blood crisis" (appearance of numerous nucleated red cells and Jolly bodies), indicating a more active bone marrow, usually was observed within a day or two of the operation, and was followed for several weeks or months by a steady rise in hemoglobin and red blood cell count. In a few cases, this increase, coincident with gain in weight and improvement in the patient's strength and general condition, has persisted during the period of observation; in six cases over a period of two years. In the majority, however, the blood picture of pernicious anemia remained, and after several months of improvement, the patient returned to the same condition as previous to operation. Of twenty-seven individuals that were living at the end of the first year after operation, nine died later, eleven were still improved and seven have relapsed to the preoperative condition, while six showed continued improvement at the end of two years. It is noteworthy, though not surprising, that those cases presenting spinal cord changes show no improvement in nervous symptoms, and are otherwise less improved by the operation than are those cases in which spinal cord changes do not exist.

Although great improvement, therefore, may be said to persist in a certain number of cases, in the majority the effect of the operation is to produce only a remission, such as is characteristic of the natural course of the disease. When, then, should the operation be performed? Should it be withheld, as a trump card, to stave off death for several months when all other measures have failed; or bearing in mind the minority cases that acquire more lasting improvement, should it be done as soon as a sure diagnosis is made, before the disease has progressed too far or spinal cord changes set in? Also in every case of pernicious anemia should the spleen be removed? Certainly, in such cases as those reported by Antonelli[10] and Mosse,[11] which might easily be considered cases of hemolytic jaundice, with splenomegaly, increased fragility and urobilin output, better results should be expected than in cases at the other extreme of the group, with no demonstrable signs of increased hemolysis, and perhaps an aplastic bone marrow. Statistics also show that better results are obtained if the operation is preceded by transfusions, if the patient is under fifty and has not had the disease for many months. The presence or absence of spinal cord changes may also prove to be an important factor. Such questions, however, must remain unanswered until the lapse of time and acquisition of more evidence will allow us to decide conclusively. The operation has already gained sufficient vogue to allow one to predict that such an accumulation of evidence will soon be forthcoming.

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[10] Antonelli: Semaine méd., 1912, xxxii, 547.
[11] Mosse: Berl. klin. Wchnschr., 1913, l, 2088.

Differential Diagnosis. — The differential diagnosis of chronic splenic disease is not only important in the selection of proper cases for splenectomy, but also in order that a more accurate prognosis may be given. For the details of the differential diagnosis, the reader is referred to other text-books and medical article;[12] but the following points may be alluded to:

The characteristic picture of Banti's disease is that of a disease running a chronic course, usually occurring in otherwise healthy young adults, and divided into three periods. In the first or pre-ascitic period, usually lasting several years, a gradually increasing weakness and pallor are noticed with digestive disturbances and abdominal pain, which may first call attention to the enlarged, hard spleen. A tendency to hemorrhages with a moderate anemia of the chlorotic type is usually present. There is nothing characteristic of this anemia, an increased urobilin excretion being the only sign of increased blood destruction. The resistance of the red cells is unchanged, and signs of a regenerating bone marrow (nucleated and reticulated red cells) are slight or absent. Leukopenia is usually present. The second or intermediate stage, characterized by scanty urine, attacks of diarrhea and dyspepsia and increase in size of liver, lasts but a few months and is usually merged in the general picture. The features of the third stage are cirrhosis, recurrent ascites and jaundice and increasing emaciation and anemia.

In Gaucher's disease, the onset is more insidious, the symptoms appear in infancy or childhood, and the disease runs a more chronic

TABLE 2.—DIFFERENTIAL DIAGNOSIS

	Etiology	Family History	Time of Onset	Duration	Icterus	Splenomegaly	Hemorrhages	Anemia	Resistance of Red Blood Cells	Reticulated Red Blood Cells	Urobilinuria	Leukocytes in Blood	Liver	Treatment
Gaucher's disease........	Toxin? Infection? Tumor?	Occasionally positive	Childhood	Many years	Rare	+++	Occasionally	Slight	?	?	?	—	+	Splenectomy?
Banti's disease..........	Toxin? Infection?	Negative	Adult life	Few years	Rare	+	Occasionally	Slight to severe	Normal	Normal	+	—	First + later —	Splenectomy
v. Jaksch's disease......	Rachitis?	Negative	Infancy	Several months	Rare	++	?	Slight to severe	?	?	?	+	+	Splenectomy? Iron, arsenic, etc.
Hayem-Widal..........	1. Primary 2. Secondary to infection	Negative	Any age	Many years	Present	++	Rare	Severe	Diminished	Increased	+	—	+ or Normal	Splenectomy
Chauffard-Minkowski...	Heredity	Positive	Congenital or childhood	Many years	Present	++	0	Slight	Diminished	Increased	+	—	+	Splenectomy
Pernicious anemia......	Enterogenous toxin?	Negative	Adult life	Few years with remissions	Very rare	Slight or diminished	Rare	Severe	Increased	Increased	+	— or +	Normal	Iron, arsenic, transfusions, etc. (splenectomy in selected cases)

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[12] Krumbhaar, E. B.: Am. Jour. Med. Sci., 1915, cl, 227; Isaac, S.: Schmidt's Jahrb., 1912, cccxv, 14; Brill, N. E., and Mandlebaum, E. S.: Amer. Jour. Med. Sci., 1913, cxlvi, 863; Tileston, W.: Amer. Jour. Med. Sci., 1910, cxxxix, 847; Thayer, W. S.: Ill. Med. Jour., 1911, xix, 174.

course. A history of similar trouble in the family is frequently elicited. The huge size of liver with attending abdominal discomfort is the most prominent symptom; and histological examination either by splenic puncture, or after splenectomy, reveals the large vesiculated cells with small eccentric nuclei characteristic of this disease. A brownish discoloration of the skin, with "peculiar yellowish wedge-shaped thickening of the conjunctivæ" on both sides of the corneæ has been noted. The changes in the blood are similar to, but less marked than, those in Banti's disease.

In hemolytic jaundice the characteristic features are the persistent acholuric jaundice, the enlarged spleen and the decreased resistance of the red blood cells to hypotonic salt solution (normally hemolysis begins at 0.45 per cent. NaCl and is complete at 0.35 per cent.). This is usually accompanied by enormous increase in urobilin output and in the percentage of the reticulated red cells. The number of nucleated cells depends on the degree of anemia, which tends to be severe in the acquired form and mild in the congenital or familial type. Crises characterized by increased severity of symptoms and anemia are common to both types.

As von Jaksch's pseudoleukemia is probably not a clinical entity and pernicious anemia is such a well-known condition, they need not be dealt with at this time.

Choice of Time for Operation.—On general principles it may be said that splenectomy should be undertaken as soon as the diagnosis is definitely settled. In certain instances, however, exceptions must be made. A "crisis of deglobulization" in hemolytic jaundice or a severe hemorrhage from a mucous membrane in Banti's disease would indicate postponement of the operation until the usual condition (for the disease) of health is regained. The existence of a possible contributing factor, as indicated for example by the finding of a positive Wassermann reaction or of malarial organisms, would naturally postpone operation until the influence of such factors had been, as far as possible, eliminated. When the anemia is severe, and this applies particularly to pernicious anemia, a series of blood transfusions (often four or more) should precede operation. If the patient's blood in this way is temporarily enriched, not only is the operative risk lessened, but more lasting benefit ensues. Good results have been obtained in pernicious anemia by the subcutaneous or intraperitoneal injection of splenic extract,[13] and in cases where the so-called "blood crisis" fails to materialize after splenectomy, indicating a failure of the bone marrow to respond, this procedure might be tried.

West Mermaid Lane.

NEURO-OTOLOGY — THE INTIMATE RELATION OF THE EAR TO NEARLY EVERY PART OF THE CENTRAL NERVOUS SYSTEM *

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The new tests of the internal ear have unquestionably opened up an entirely new field of medical and surgical diagnosis. Needless to say, the ear has long been recognized as the organ of hearing, and the study of the cochlea has reached its highest perfection in the world in the teaching of Dr. B. A. Randall and his functional tests of hearing. It is only in the past few years, however, that the ear has been proved to be not only the organ of hearing, but also the organ of equilibration. The eye is the organ of sight, the cochlea the organ of hearing, and the static labyrinth (the utricle, saccule and the three semicircular canals) constitutes the sense organ for balance.

The pioneers in this study are the Vienna group of otologists, particularly Robert Bárány, who received the Nobel prize of 1915 for his work on this subject. Our contribution has been the attempt to work out the intracranial pathways from the ear; Dr. T. H. Weisenburg originally suggested that we undertake this work, and in fact it is the cooperation of Dr Charles K. Mills and Dr. Weisenburg that made this study possible.

The static labyrinth may be stimulated (1) by turning an individual in a revolving chair, (2) by douching the ears with either cold or hot water, or (3) by the galvanic current.

When the ear is stimulated by any one of these methods, certain peculiar phenomena result: (1) Rhythmic twitching of the eyes—nystagmus; (2) a subjective sensation of movement or rotation which may be spoken of as vestibular vertigo.

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[13] Mickhailoff: Russky Vrach, 1914, xiii, 837 (abstracted in Jour. A. M. A., 1914, lxiii, 2081).

* Read before the Section on Eye, Ear, Nose and Throat Diseases of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 21, 1916.

According to our conviction, it is because of this vertigo that the individual falls in a definite direction, and when he attempts to locate with his finger an object he previously felt, he is unable to find it but "past points."

Now it is evident that if stimulation of the ear causes a movement of the eyes, there must be a definite nerve pathway from the ear to the eye muscles. Also if ear stimulation causes dizziness there must be a definite nerve pathway from the ear to the cerebral cortex. On the basis to date of over 300 pathological cases, including a considerable number of operations and autopsies, we have come to recognize certain pathways. Our teaching is as follows:

1. The fibers from the horizontal semicircular canal pass through the eighth nerve, enter the brain stem at the junction of the medulla oblongata and pons, and continue directly to Deiters' nucleus and there divide into two pathways: (*a*) The vestibulo-ocular tract, concerned in the production of the nystagmus. These fibers go from Deiters' nucleus to the posterior longitudinal bundle through which they pass to the various eye-muscle nuclei, from which, through the third, fourth and sixth nerves, they are distributed to the eye muscles themselves. (*b*) The vestibulo-cerebello-cerebral tract, responsible for the vertigo. From Deiters' nucleus this path enters the cerebellum through the inferior cerebellar peduncle to the three vestibular cerebellar nuclei of the same side, from which it proceeds upward through the superior cerebellar peduncle and continues to the cerebral cortex on both sides, but more particularly the opposite side, through the crura cerebri and the internal capsules. The cortical areas which receive these fibers are postulated by Mills to be in the posterior portion of the second temporal convolutions adjacent to the cortical area for hearing.

2. The fibers from the vertical semicircular canals have a very different course; after passing through the eighth nerve they immediately ascend into the pons and at a point above the middle of the pons they have a division into two pathways similar to the division of the horizontal canal fibers at Deiters' nucleus: (*a*) The vestibulo-ocular tract, the fibers entering the posterior longitudinal bundle. (*b*) The vestibulo-cerebellar-cerebral tract reaches the cerebellum through the middle cerebellar peduncle, entering the cerebellar nuclei of the same side, from which the pathway is identical to that of the fibers from the horizontal canal, through the superior cerebellar peduncle to the cerebral cortex of both sides.

The internal ears and these intracranial pathways constitute our conception of the vestibular apparatus. Dr. Fisher in the paper which follows will explain the practical usefulness of a study of these pathways from the standpoint of diagnosis. The essential point is obvious. It is the vestibular apparatus that is responsible for equilibration. We have in these new tests the methods of studying this apparatus. "Dizziness," therefore, need no longer be a matter of guess-work but may be intelligently studied and its cause analyzed.

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HOW TO DIAGNOSE THE CAUSE OF DIZZINESS*

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Vertigo is such a frequent and distressing symptom that one need hardly apologize for any attempt to contribute something to its etiology and methods of diagnosis. Unfortunately, in the past, the physician could offer but little in the way of either. He has been accustomed to regard vertigo as something vague and mysterious, and quite beyond the reach of scientific analysis or medical aid. As a result of studies on a large number of cases carried on by us, at the ear department of the University of Pennsylvania, we have come to regard dizziness or vertigo as a distinct clinical entity, with a definite etiology. We all know, for instance, that headache, whenever present, be it due to constipation or displacement of the pelvic organs, or some gastro-intestinal disturbance or what not, is nevertheless in the head. In just the same way we would like to emphasize that vertigo, from whatever cause, can be produced only by something affecting the "vertigo apparatus" and one is never justified in speaking of any particular kind of vertigo such as kidney vertigo, essential vertigo, gastric vertigo, or hepatic vertigo.

In the preceding paper Dr. Jones has given us an outline of the various nerve tracts comprising this vestibular apparatus the disturbance of which is responsible for vertigo, and also hinted in a general way how dizziness may be produced and diagnosed. It would be well for us first to get a clear mental concept as to just what the words "dizziness" or "vertigo" mean. As before stated the equilibrium of the body is maintained by means of a special mechanism known as the vestibular apparatus. We were told how the sense-organ of equilibration is the static portion of the internal ear. We also know that from the ear radiate many nerve paths bringing it into a most intimate relation with the whole of the central nervous system as well as with the other special sense organs. Dizziness or vertigo results from an interference either by destruction or irritation anywhere along this whole system. The fibers carrying the impulses producing vertigo find their cortical representation in centers, postulated by Mills to be located in the posterior portion of the second temporal convolution of each side, adjacent to the cortical area for hearing. These centers are in turn connected by association paths with other parts of the cerebral cortex, especially the frontal lobe.

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The movements of the body, either those of turning, of moving sideways or in an anteroposterior direction, generate impulses in the various portions of the static labyrinth which are transmitted to the different nerve centers and the central nervous system, insuring perfect equilibration in the normal individual. The impulses for turning sensations are generated in the semicircular canals by movement of the endolymph within them, which affects the ciliated hair cells of the "end-organs" located in the ampullæ. Such movements of the body do not ordinarily produce dizziness because they are normal movements, and the stimulation produced by them is of a nature to which the individual has been accustomed from countless repetitions as well as from inherent memory of numberless generations preceding him.

In order to produce dizziness, the stimulation must be of an unusual kind so that, when it is desirable to induce it experimentally, we employ a type of stimulation to which the individual is not accustomed, such as turning him in a chair or douching the ears with cold or hot water or by applying the galvanic current to his ear. When this is done we observe certain phenomena known as the vestibular reactions. Dr. Jones has shown how these reactions are always present in normal individuals and he has also called attention to the type of stimulation employed in producing them. Now these reactions can be made to serve a most practical and useful purpose in the diagnosis of cases in which the patients complain of dizziness. The ability to say accurately just at what point along the vestibular apparatus a lesion producing dizziness is located, will depend largely on how clearly we can visualize the various pathways making up this vestibular apparatus. The essential point is that movement of the endolymph within the semicircular canals will induce experimental dizziness of a certain type and duration, provided the "end-organ" itself as well as all the nerve tracts leading from it are absolutely intact. When artificial stimulation of the labyrinth fails to produce one or all of the reactions, it is not an accident; it is the result of a distinct interruption to the passage of these impulses at some point along this intricate system of pathways.

Vertigo is not always merely a passing temporary inconvenience for the patient, but is frequently the first sign of something very grave. Many pathological conditions may exhibit vertigo as a symptom. Among those might be mentioned neuritis of the eighth nerve, so-called Ménière's disease, toxic labyrinthitis, which might be acute or chronic, the acute being seen in cases of ptomain poisoning or when an overdose of alcohol is indulged in, and the chronic form, in which some focal infection is the cause. It might also accompany Bright's disease, syphilis, gout, diabetes, many cardiovascular conditions, and gastro-intestinal toxemias. It is also frequently seen in multiple sclerosis, syringomyelia, internal hydrocephalus, brain tumor, brain abscess, as well as in many of the infectious diseases or in poisoning by chemicals, or in neurasthenia. In all of these conditions a careful examination of the vestibular apparatus would reveal to us the true cause of the vertigo, and of course give us valuable information as to treatment and prognosis.

When examining a patient with vertigo we must bear in mind three possibilities: (1) The vertigo may be due to some simple irritation of the vestibular tracts. In such a case it is temporary and fleeting in character, leaving the apparatus itself intact. (2) There may be an actual lesion of the vestibular apparatus located in the internal ear itself or in what we call the "end-organ." (3) The internal ear may be intact, and the lesion located somewhere within the cranium.

In order to determine to which class the case belongs, we must carry out a complete and thorough examination of the vestibular apparatus. If such an examination elicits normal responses, that is, stimulation of the various portions of the labyrinth by means of turning and douching, produces normal nystagmus, vertigo, past pointing and falling, we conclude that the vestibular apparatus is intact, and the vertigo in the given case was produced by some temporary condition perhaps easily amenable to treatment. Should stimulation of the internal ear produce abnormal responses, we conclude that we are dealing with an actual lesion of the vestibular apparatus. It then becomes incumbent upon us to decide whether we are dealing with a labyrinthine or an intracranial lesion. Before stimulating the labyrinths, we first consider the hearing, spontaneous nystagmus, spontaneous falling, spontaneous past pointing and spontaneous vertigo.

It is important to examine the cochlear labyrinth with a great deal of care, for which purpose the hearing function is tested with tuning forks. We are safe in assuming that with perfectly normal hearing the static labyrinth is likewise normal, for the reason that the cochlear portion is phylogenetically the youngest and therefore the least resistant. Any toxin circulating in the labyrinth would therefore be more likely to affect the cochlea first.

SPONTANEOUS NYSTAGMUS

Spontaneous nystagmus may be oscillatory or rhythmic. The oscillatory form of nystagmus is not produced by any lesion along the vestibular apparatus and therefore has no bearing on the present subject. A spontaneous nystagmus when produced by an affection of the vestibular apparatus is invariably rhythmic in character, consisting of a slow movement in one direction followed by a quick recall in the other. If it is directed toward the right or the left it gives us but little locating information as to its origin, since "end-organ" as well as intracranial conditions may exhibit such a spontaneous nystagmus. Should such a nystagmus, however, be in a vertical direction upward, it invariably means a lesion of the brain stem. Bárány has stated that such a lesion is always "intracranial." In our experience confirmed by operations and autopsies, it means more than that; we regard a spontaneous vertical nystagmus upward as a pathognomonic symptom of a lesion of the brain stem.

SPONTANEOUS FALLING

Spontaneous falling when present is of some value. In a general way it is recognized that patients have a tendency to fall towards the side of the lesion. Careful note is taken, however, whether the falling is always in the same direction, or whether changing the position of the patient's head changes the direction of the falling. If the patient always falls in the same direction it is suggestive of a lesion within the cranium, if however changing the position of the head changes the direction of the falling it is suggestive of a lesion within the labyrinth.

SPONTANEOUS POINTING

A normal individual should be able to locate a point in space with eyes closed after he has merely touched it. When the patient persistently "past points" with either extremity in one or the other direction it is indicative of a lesion in the cerebellum, but it is not of a very great localizing value. In a general way a spontaneous past pointing of the right arm to the right suggests a lesion of the inward pointing center in the right lateral cerebellar hemisphere. In a similar way spontaneous past pointing of the right arm to the left suggests a lesion of the outward pointing center for the right arm in the right lateral cerebellar hemisphere.

SPONTANEOUS VERTIGO

Spontaneous vertigo may throw some light as to whether the lesion is intracerebellar or extracerebellar, provided it is systematized. In a general way vertigo produced by an affection of the end-organ is most marked at the onset of the disease and gradually becomes less and less marked, whereas the vertigo produced by an intracranial affection such as tumor, etc., has but slight or no intermissions and as a rule becomes progressively worse.

EAR STIMULATION

The information that is of greatest value, however, lies in the ear tests, consisting in either an absence of normal reaction or in deviations from the normal after stimulation. If after stimulation there occur no responses whatsoever, no nystagmus, no vertigo, no past pointing, and no falling, the lesion is either in the labyrinth or the eighth nerve.

If any one of the responses goes through normally it eliminates the labyrinth and eighth nerve as the seat of the lesion, as they themselves must necessarily be unaffected in order to have produced any one normal response.

If stimulation of the ear fails to produce any nystagmus, there must be a lesion along the pathways from the ear to the eyes, in the vestibulo-ocular tract.

If the patient has no vertigo after stimulation, it indicates a lesion along the pathway from the ear to the cerebral cortex, the vestibulo-cerebello-cerebral tract. The presence of a normal nystagmus, after stimulation, with an absence of vertigo, would indicate a normal tract from the ear to the eye, but an involvement of the other pathway, namely the one producing dizziness after the two have divided into their individual tracts. Inasmuch however as the normal nystagmus eliminated the labyrinth, eighth nerve and medulla oblongata as the seat of the disease, the lesion in such a case would have to be located between Deiters' nucleus and the cerebral cortex.

In the same way we eliminate as normal the pathways from the ear to the cerebral cortex in cases where stimulation of the ears produces normal vertigo and no nystagmus. In such a case the lesion must be along the fibers going to the eye-muscle nuclei at some point beyond the division of the two pathways into their individual tracks, between Deiters' nucleus and the posterior longitudinal bundle.

It might be profitable to take up these phenomena in detail and, even at the risk of some repetition, consider the significance of each "phenomena complex."

1. When the results of ear stimulation are nystagmus none, vertigo none, past pointing none and falling none, we are obviously dealing with a destruction of the labyrinth or the eighth nerve produced either by a toxemia (acute or chronic), hemorrhage, inflammation or a tumor. We, of course, have the corroborative evidence of a complete deafness in that ear. There is always present, beyond a doubt, a complete destruction of the labyrinth or eighth nerve when we have a picture of a dead auditory apparatus as well as non-responsive semicircular canals.

2. Should stimulation of the horizontal semicircular canals produce nystagmus none, vertigo normal, past pointing normal, the lesion indicated is in the medulla oblongata, between Deiters' nucleus and the posterior longitudinal bundle.

3. If stimulation of the vertical semicircular canals produces nystagmus none, vertigo normal, past pointing normal and falling normal, the lesion indicated is in the posterior portion of the pons near the posterior longitudinal bundle.

4. If stimulation of the horizontal semicircular canals gives nystagmus normal, vertigo none and past pointing none, the lesion suggested is in the inferior cerebellar peduncle on that side, or at a point further up along the vestibulo-cerebello-cerebral tract in the pathway for dizziness.

5. If stimulation of the vertical semicircular canals produces nystagmus normal, vertigo none, past pointing none and falling none, the lesion indicated is in the middle cerebellar peduncle, or at some other portion of the vestibulo-cerebello-cerebral tract, higher up.

6. If stimulation of the horizontal semicircular canals and also of the vertical semicircular canals produces nystagmus none, vertigo normal, past pointing normal and falling normal, there is indicated a lesion of the posterior longitudinal bundle.

7. If stimulation of the horizontal and vertical semicircular canals produces nystagmus normal, past pointing none, falling none and vertigo none, it indicates a lesion of the cerebellar nuclei of that side where the fibers from the inferior and middle cerebellar peduncles come together, or in the upper portion of the pons where all these fibers again come together at the decussation of these fibers in the superior cerebellar peduncles.

This is the method of analysis in cases of dizziness on the basis of the auditory and vestibular findings.

In the paper which follows, the actual application of these findings in pathological cases will be shown you and their clinical value demonstrated. What we wish to impress however is that by means of these tests the clinician is enabled to know whether the symptom of which his patient complains is a mere trifle or whether it is a forerunner of some grave affection. What is more, in hundreds of cases of vertigo examined at the University of Pennsylvania and elsewhere, these tests have told us just why and wherefore the patient is dizzy. No practitioner would be justified to grope about in the dark and treat his patient for Brights' disease or diabetes simply on suspicion—of course he would make a test of the urine. In cases of vertigo he has just as little justification for guess-work; an examination of the vestibular apparatus will tell him whether the dizziness is due to gout or a brain tumor, or a toxemia or neurasthenia or what not. He is then in a better position to advise his patient and institute a rational course of treatment.

1007 Spruce Street.

VISITORS TO AMERICAN SPAS

The Europeau war, which has so profoundly affected our industries, has had a considerable influence in increasing the patronage of American health resorts. Many Americans who usually go to foreign spas have visited home institutions instead. Furthermore, numerous residents of other neutral countries, who would in other conditions have gone to Carlsbad, Homburg or the hundred other health headquarters of Europe, have come to the United in search of health. This is particularly true of wealthy residents of Central and South America. In the last year the Battle Creek Sanitarium has had about 200 patients from abroad.

THE APPLICATION OF NEURO-OTOLOGY TO THE DIAGNOSIS OF ACTUAL CASES—REPORT OF CASES *

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There is not a fact in history, a problem in mathematics or physical science or a well-constructed sentence, that bears good except when it has a real relation to life, and so it is that the Department of Neuro-otology at the University of Pennsylvania feels that this branch is no longer based on theoretical expostulations but has a decidedly practical value. We have helped the other branches in medicine in concluding their diagnoses and in only too many cases where there was total obscurity have the Bárány tests proved the conclusion.

I cannot in the short time given me run through and analyze many and various types of cases we have seen, but I want to take up a few types to show the practical application of these tests.

GROUP I—MÉNIÈRE'S DISEASE

Case 1.—Mrs. W., aged 60 years. In 1897 she had her first attack of dizziness, which lasted a few seconds, she then had attacks about once a month until 1903. At this time she noticed some impairment of hearing in the left ear which became worse until 1911 when she had an attack of nausea and staggering but not severe; again in August, 1913, she had a dizzy spell which lasted for two days. From that time she had an uneventful history until 1914 when another severe attack visited her, so severe that she was bedridden for three days and during that time was dizzy and so nauseated that she was unable to retain even water on her stomach. There was a subsidence of symptoms until September of the same year, when one of the surgeons in Philadelphia of highest rank operated on her for gallstones; the operation revealed a normal gallbladder and also a normal appendix. Three weeks after the operation she had another severe attack of vertigo; these attacks continued until February, 1916, when she came under our observation.

It was a very easy matter by means of the functional fork tests to determine a dead left cochlea and a slightly impaired right cochlea. The left static labyrinth showed a marked impairment of the vertical and horizontal canals. The right static portion showed a condition similar to the left static portion. We, therefore, immediately put this case in the end-organ type, as it seemed almost impossible to picture an intracranial lesion of such a size and position that it would give us a bilateral involvement. We attributed her attacks to an irritative labyrinthitis and not due to a congestion or anemia because of the very definite degenerative changes that must have taken place, but more likely to be of a toxic nature or actual serous extravasation. A diagnosis of Ménière's disease was made.

Case 2.—Mr. G., aged 65. On May 13, 1915, he had a dizzy spell; also a sudden stoppage of hearing in the right ear. On May 15, he had nausea, vomiting and dizziness which lasted two weeks. Since that time he has had tinnitus, slight vertigo and staggering. The fork test showed a dead cochlea of the right side; the left cochlea showed normal hearing for a man of his age. Stimulating the left ear by turning and douching showed practically normal reaction, but stimulating the right static ear showed very much diminished vertigo, past pointing and nystagmus especially for the horizontal canal. The fact that we were able to elicit the reactions at all means that this case again is end-organ in type. A diagnosis of Ménière's disease was made in this case.

GROUP II—SPECIFIC LABYRINTHITIS

Case 1.—Frank H., aged 56. One year ago the patient complained of tinnitus and dizziness. Five months ago (December, 1915) he began to stagger. This patient came under my observation in April, 1916, complaining of tinnitus, deafness and vertigo. The fork test showed lessened bone conduction and diminution of high tone (namely involvement of cochlea).

Turning the patient to the right and to the left showed respectively a normal horizontal nystagmus, except that it lasted but eight seconds and ten seconds as compared with the normal twenty-four seconds. Douching both the right and left vertical canal after five minutes gave no response whatever. This patient also had a subnormal vertigo. This case is therefore an end-organ type and a diagnosis of specific labyrinthitis was made. A four plus Wassermann reaction was found.

GROUP III—INVOLVEMENT OF THE EIGHTH NERVE

Case 1.—Ray G., aged 26. Patient came to the University Dispensary complaining of deafness, tinnitus and vertigo. He also had involvement of the seventh and fifth nerves of the left side. The fork test showed a dead left cochlea and a well-functionating right cochlea. Turning and douching failed to give any reaction whatever from the left static portion of the ear.

A plus Wassermann reaction was found and a diagnosis of specific neuritis of the left eighth nerve was made.

I have differentiated this case from specific labyrinthitis, first, because there was involvement also of the seventh and fifth nerve of the left side; second, because in the case of specific labyrinthitis there was not total destruction and we were able to elicit some reactions even though they were not normal in type, while in this case of specific neuritis we were unable to elicit any reactions whatever.

Case 2.—Angelo G., aged 50. Last January the patient was taken with a sudden chill and complained of great pains in the head and back of neck. He was treated by his family doctor for typhoid, but did not improve. He was then taken to the University of Pennsylvania where he was treated for hemorrhage of the brain and for fifteen days ice was kept to his head continually. A month following he lost the hearing in the right ear and the following June the hearing in the left ear became impaired and was very soon gone. Headaches appeared which were far

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* Read before the Section on Eye, Ear, Nose and Throat Diseases of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 21, 1916.

worse at night and during this time he experienced much dizziness and a staggering gait. The patient was also mentally depressed.

His was diagnosed in the neurological clinic as a cerebellar case. The Bárány tests were done and a diagnosis of syphilitic neuritis of both nerves was made, due to a low grade basilar meningitis. A positive Wassermann reaction was found in the blood and in the cerebral spinal fluid. Both the left and the right static ears failed to give any reaction after stimulation. Any central lesion to have completely destroyed the paths on both sides would have to be very extensive, in fact so very extensive as to be practically inconceivable.

The reason that there was no reaction produced by the stimulation of the labyrinth must be looked for in the labyrinths themselves or the eighth nerves, and we believed the eighth nerves to be affected and not the labyrinths themselves because of the presence of signs of an accompanying meningitis of a low grade basilar type.

Case 3.—James H., aged 38. This case is of particular interest and I cite it to show the proof and convincing use of the Bárány tests. Patient was operated on by Dr. Frazier for persistent tinnitus following a basal fracture. The auditory nerve of the left side was divided in the posterior fossa. He came back three years later still complaining of the tinnitus. The question then was whether the tinnitus was due to an involvement of the eighth nerve endorgan or central in character. Of course, the fork test showed negative hearing, but remember that hearing is a subjective matter and depends on your patient's interpretation while the testing of the static portion of the labyrinth is principally objective.

After stimulating the static portion of the left labyrinth by turning and douching, we were able to produce no reactions whatever and our conclusions were that there were dead static and cochlea portions; left nerve was evidently severed; the continuance of the tinnitus is therefore central in origin.

GROUP IV—BRAIN STEM LESIONS

Case 1.—Mrs. Carrie D., aged 36. Eight weeks previous to her entrance to the Neurological Department of the University of Pennsylvania, this patient showed marked symptoms of vertigo with no associated tinnitus. This dizziness progressed so that in two weeks she could not walk at all, showing marked ataxia. Six weeks later she began vomiting which continued at intervals. She had severe headaches and noticed a progressive failing in vision. She also showed paresis of the third and sixth nerves.

Examination showed that she had a chronic catarrhal deafness, but the cochlea of both sides were intact. Spontaneously she showed occasionally a vertical nystagmus on looking upward. On stimulating the right horizontal canal by turning and douching we were able to produce only a conjugate deviation, but no nystagmus or vertigo. On douching the right vertical canal we were unable to produce a conjugate deviation or nystagmus and again no vertigo or dizziness. While douching the left vertical canal we were able to produce a conjugate deviation, also nystagmus; patient for the first time experienced dizziness and vertigo. Therefore, the lesion must have been of the intracranial type and in a place that would interfere with vertigo, cerebral control of nystagmus, the posterior longitudinal bundle and the right vertical fibers. We placed the lesion in the upper posterior portion of the pons, extending down to the region of the right middle cerebellar peduncle. The medulla and lower half of the pons were uninvolved.

Postmortem showed both by gross specimen and histological slides the lesion to be in that portion which we have mentioned.

It was from this case that we were able to make a differentiation between the distribution of the fibers from the vertical and horizontal semicircular canals.

GROUP V—CEREBELLAR LESIONS

Case 1.—Leo S., aged 20. Patient came to the University Neurological Clinic complaining of dizziness, loss of memory, headache and vomiting. He was referred to the ear clinic for Bárány test. Spontaneously the patient showed poor conjugate movements, also a vertical nystagmus upward and downward which immediately meant a lesion which was neuraxial either pressure or infiltration. Stimulating the vertical canal caused a vertical nystagmus instead of rotary; this perverted nystagmus meant lesions of the posterior longitudinal bundle or the eye nuclei themselves. Stimulating the left horizontal canal produced a normal nystagmus, but soon it became a conjugate deviation; this showed involvement of the cerebral fibers to the eye muscle at the junction of cerebral crura.

Stimulating both the right horizontal and right vertical canals gave a perverted nystagmus. All of the semicircular canals produced vertigo after stimulating, which meant that the superior cerebellar peduncles were uninvolved.

Spontaneously pointing was slightly ataxic and the right arm pointed toward the left; this suggested a lesion of the center for past pointing outward which was in the right lateral cerebellar hemisphere. This was further brought out by the inability to make the arm past point outward after ear stimulation from turning patient to the right, with cold water to the right ear, and hot water to the left ear. These symptoms pointed to a lesion in the center for past pointing outward which was in the semilunar lobe of the right cerebellar hemisphere. Stimulation of the left ear gave some failure in past pointing but not so marked as the right. The pelvic girdle reactions were markedly disturbed (this showed a lesion of the vermis). We have therefore definite evidence of involvement of the right lateral hemisphere, vermis, left lateral hemisphere of the cerebellum, upper posterior portion of pons and the posterior portion of the junction of the cerebral crura because of the marked involvement. It was evident that some of the phenomena were due to pressure. Therefore the explanation from the ear standpoint was an infiltrating glioma involving the right cerebellar hemisphere extending over to the vermis and entering pons at its upper half and extending into the junction cerebral crura.

The surgeon's report showed an inoperable gliomatous growth coming up from the two hemispheres.

Case 2.—Agatha A., aged 2½ years. Three weeks ago this child had an operation for acute mastoiditis by Dr. Randall. Four days before the Bárány tests were used this patient developed symptoms of intracranial disturbances, namely semistuporous and a very slow pulse. Without doubt, this child had a brain abscess, but just where to locate this abscess was a mooted question. Ordinarily we would look for an abscess following a simple mastoiditis in the middle fossa. The Bárány tests were applied and we found on douching the left ear with cold water, head back 60 degrees, there was produced a conjugate deviation of both eyes to the left but no nystagmus. On douching the right ear with cold water with head back 60 degrees, there was produced no ocular reactions whatever. We then douched the left ear with hot water, head back 60 degrees, and produced a conjugate deviation to the right.

It was very evident that there was a complete block of the right side, either labyrinthine, eighth nerve or a lesion involving the brain stem about the medulla. It was not end-organ as the child did not show any symptoms of labyrinthitis. We therefore placed the lesion in the posterior fossa of the right side, namely the cerebellopontine-angle region. Immediately after the examination Dr. Randall opened the right cerebellar region and evacuated a large amount of fetid pus.

GROUP VI—INFERIOR CEREBELLAR PEDUNCLE

Case 1.—Ellison L., aged 53. On June 19, 1915, the patient had an attack of nausea, dizziness and staggering. Arms were not affected, motive power was not lost, but the patient could not stand up or walk. He also had some disturbances of speech. The third day he had pains in the head. His chief complaints were dizziness, staggering and pain in the head. Examination, Oct. 19, 1915: Cochlear portions of each ear showed normal hearing. There was no evidence of acute inflammatory changes, no spontaneous nystagmus or past pointing. On turning the patient to the right side and then to the left, there was produced a normal nystagmus. Also turning the patient first to the right and then to the left, there was produced a normal past pointing, except the patient failed to past point the right hand outward when turned to the right. Also on douching the right horizontal semicircular canal with the head back 60 degrees, there was produced a good nystagmus, but no vertigo and patient again failed to past point to the right with the right arm. Therefore, we have placed the lesion in the inferior cerebellar peduncle of the right side.

This case was diagnosed previously by Dr. Spiller as being a thrombus of the posterior inferior cerebellar artery which you know supplies the inferior cerebellar peduncle.

GROUP VII—CEREBELLAR PONTINE ANGLE TUMORS

Case 1.—William S., aged 33. This case which I will cite hurriedly is of interest because the patient came to the ear clinic from the neurological clinic bearing the following note:

"William S. has symptoms suggesting a lesion of right frontal lobe implicating the face center. He has some dysmetria of the left hand. The case may be interesting as showing possibly past pointing from a cerebral lesion. This case will be operated on within a few days."

Summary of examination: Vertical nystagmus upward, slight paresis of right external rectus. Turning suggested right ear was better than the left ear. Hearing was perfect on right side. No nystagmus after douching right vertical canal. A subsequent examination after douching two minutes produced a fair nystagmus and past pointing. Therefore, right labyrinth, eighth nerve and right portion of medulla were normal. The left ear was stone deaf and gave no reactions whatever, after stimulation. Disturbance in reactions of the right semicircular canal was not due to any trouble in the right labyrinth, but to pressure on the pons from the other or left side. This was borne out by the fact that the nystagmus fibers were completely interrupted, while the more distal past pointing fibers were not interrupted.

Conclusion: Therefore this was an intracranial case and the lesion must have been in that place which would interfere with the past pointing nystagmus and vertigo fibers of the left side, and at the same time slightly inhibit the nystagmus fibers of the right side.

We diagnosed this case as a left-sided cerebellopontine-angle tumor. This diagnosis was verified by postmortem.

Case 2.—William H., aged 48. The chief complaints were headache, vertigo and staggering. On Nov. 22, 1915, the patient bumped his head and was somewhat dizzy and his work lagged. Within a week pains developed severely. While he had been hard of hearing in the right ear for fifteen years, the hearing had become worse since the onset of the trouble. He also had some difficulty in swallowing. By December 12, he staggered to the right and left while walking and the vision became progressively worse.

Examination: Hearing test showed the right ear completely deaf while the left ear showed normal hearing. There was no evidence of inflammatory disease in either ear. While doing the Romberg test there was no considerable swaying. When an attempt was made to throw the patient he fell like a log, showing that there was no reaction of the pelvic girdle. An examination of spontaneous phenomena revealed a spontaneous nystagmus in every direction in which the patient was told to look, the vertical nystagmus being most marked. The spontaneous pointing tests were perfectly normal. There was lessened sensibility of the right cornea suggesting weakness of the fifth nerve. The turning test showed a horizontal nystagmus to the left for twenty-eight seconds when turning to the right; and a horizontal nystagmus to the right of eleven seconds when turning to the left. In other words a stronger and better nystagmus when the left ear was stimulated than when the right ear was stimulated. The past pointing outward with either arm was poorer, while the past pointing inward with both arms was good. There was no response at any time after two minutes and ten seconds of douching the right ear with the head at any position; while douching the left with both hot and cold water gave a correct nystagmus and past pointing. Stimulation of the left ear made him fall tremendously to the left, while stimulation of the right ear produced no falling whatever.

Analysis: Since we were dealing in this case with a unilateral destruction of the labyrinth or of the eighth nerve, it becomes necessary for us to discuss at some length the reason for placing this in the intracranial group of cases. A good many of the phenomena that this patient exhibited appear both in cases of end-organ disturbances, as well as in those of intracranial lesions, such as the spontaneous nystagmus, the incoordination and staggering gait. It is not an end-organ case for the following reasons: (1) The spontaneous nystagmus, instead of coming on rapidly and then gradually becoming less and less, came on rather slowly and grew progressively worse and worse, and at the time of examination it had already lasted for a period of several months.

(2) The incoordination became gradually worse instead of better as would be expected in a unilateral destruction of the labyrinth. (3) The staggering and falling were always in the same direction and were not changed by altering the position of the head. (4) There was present a spontaneous nystagmus upward, and any form of spontaneous vertical nystagmus means intracranial trouble. (5) There were present incoordination, impaired mentality and involvement to some extent of the fifth nerve.

Having placed the case in the intracranial group, it was our next endeavor to localize it more accurately within the cranium. By far the most important single thing that stood out in marked contrast with any of the findings was the loss of function of either the labyrinth or the eighth nerve of the right side. It would be difficult to conceive of any pathological process that would so affect and destroy one labyrinth *in toto* without affecting the other. What we really had was a complete destruction of the eighth cranial nerve, cutting off all stimuli from both the cochlea and the vestibule. This was our starting point in the analysis of this case. There was a growth or tumor in a region where the eighth nerve could be destroyed such as the cerebellopontine angle. Would a lesion in that region account for all the other phenomena? Let us take up every deviation from the normal and see.

The left ear when stimulated by douching it with either cold or hot water should produce practically normal reaction, and a glance at the chart shows that it did. The failure of the right arm to past point outward or to the right can easily be accounted for by the tumor extending and pressing against the right cerebellar hemisphere. The affections of the fifth nerve can be accounted for as a result of a pressure by the growth. Also, the ataxia of the pelvic girdle and the muscles of the trunk generally are easily explained by pressure of the tumor mass against the vermis of the cerebellum.

The diagnosis therefore of cerebellopontine-angle tumor was made in this case and later verified by operation and finally by postmortem.

GROUP VIII—MISCELLANEOUS CASES

The next group includes those cases of dizziness due to irritation of the labyrinth and vestibular apparatus by remote causes as: Tonsillitis, Bright's disease, diabetes, nicotin poison, malaria, infective teeth, also the anemias, ischemias and hyperemias as in cardiovascular diseases; also in neurasthenia, hysteria, epilepsy and chorea.

In closing I wish to recall to your minds that the paramount symptom in all these cases is vertigo.

1. It is a disturbance of equilibration that we call vertigo.
2. That the ear is the organ of equilibration.
3. Therefore, vertigo is a vestibular manifestation.
4. Dizziness, no matter how rēmote may be the cause, is due to a disturbance of this apparatus.

4813 Baltimore Avenue.

DISCUSSION

ON PAPERS OF DRS. JONES, FISHER AND BRUMM

Dr. B. Alexander Randall, Philadelphia: The equilibrium apparatus of the lower animals consists of an involuted neural pouch like the primary otic sac of the higher embryo, in which one or more concretions, secreted or acquired, rest in contact with the terminal hair cells of the vestibular nerve. The weight of these "otoliths" pressing on the nerve terminals serves like plummets to inform the creature as to the direction of gravitation. Their inertia, when there is a change in the rapidity or direction of motion, likewise indicates this. The lobster or crawfish sheds these otoliths with his outgrown shell and replaces them promptly by grains of sand introduced by his pincers. If particles of iron are supplied him for this purpose and then a magnet is brought near, he is unable rightly to judge his position or motion and suffers that perverted space sense which we call dizziness. If in the tadpole with his elaborate equilibrium apparatus of three semicircular canals, we destroy or better still displace one or more semicircular canals, as Streeter has done, the creature is wholly unable to keep right-side-up or to swim in any chosen direction. If he develops to a frog and walks the land, his tactile sense will inform him as to the direction of gravitation and his muscle sense and his eyesight tell him as to his own movements, and thus his disability can be largely compensated. Yet in the water he would have to depend mainly on his sight and would be almost as much "at sea" as a higher animal thus crippled by lacking space sense.

Man and the higher animals have these three organs, the ear labyrinth, the eye and the pressure sense, to give them accurate space sense and equilibrium; perversion or even loss of one can for a while greatly disable but with the other two he can, like a boy on stilts, by effort balance himself. Deprived of sight in the dark or with closed eyes, he would have to balance on one support, as also when in the buoyant water which vitiates his sense of gravitation and muscle-effort, and would be largely incapacitated. For loss, the compensation can gradually be considerable; but perverted impressions can less readily be corrected and thus we find intense effect from recent pathological or our experimental disturbances of the principal organ of equilibrium, the vestibular apparatus or static labyrinth, which we are here considering.

Nystagmus is produced because when the body seems revolving in one direction and all outside objects moving in the opposite direction, the eyes try to stabilize the sensorium by fixing on one of these extraneous objects as it moves and snapping back to a new one as the first seems to pass out of reach. Real objects, actually standing still, would subserve this purpose; but, with the eyes closed or behind opaque glasses, the nystagmus has full manifestation. Pointing to an outside object, seen or located by touch of a finger or other pointer, would have a like effect; and with closed eyes the past pointing shows the perverted sense of position. The vertiginous sense of instability gives a feeling of falling in the direction of apparent rotation and a mistaken effort at correction causes falling toward the other side. Dr. Jones' statement of the rule as to the tests by rotation and cold douching gives us the law for these reactions: "If to the right, all are to the right—falling, past pointing and the slow, vestibular movement of the nystagmus."

So much for the physiology, with its element of psychic influence. Make these tests accurately, as too few have done and are doing, and these reaction phenomena can be counted on in the normal and prove undamaged end organs, nerve paths and centers. But impaired end organs may give us perverted or negative results; the phenomena will be exaggerated or diminished to the vanishing point; the neural paths and the centers to which they lead or the efferent paths by which motor impulses pass out in response to these stimuli must be in perfect working order or their lesions will be revealed by this valuable series of practical and far-reaching tests.

Dr. T. H. Weisenburg, Philadelphia: As is well known, up to some years ago it was not possible to make a diagnosis of a cerebellar lesion excepting to say that it was either in the right or left lateral or in the middle cerebellar lobe. During the last few years, however, our knowledge has increased so that it is possible now to localize lesions in nearly any portion of the cerebellum. This addition to our knowledge has been due chiefly to the work of Babinski and Rothmann, and to a greater degree to Bárány, who originated the tests which have been so well presented this morning by Drs. Jones, Brumm and Fisher. My own method of using these tests is as follows: In every case in which there is a cerebellar lesion, after making my own examination, I have these patients tested out by the Bárány tests. In the majority of instances these tests are confirmatory and help in localization. If they are not confirmatory I take it that my neurological examination is of much more value and I base my judgment on it. This view has been proved in a number of instances in which the neurological diagnosis has differed from that made by the Bárány tests.

I believe that the Bárány tests are of the greatest value in cerebellar localization because they afford a direct method of investigation of the labyrinth and its intracranial connections and as such give information which it is impossible to obtain in any other way. I wish in conclusion to pay a tribute to Drs. Jones, Brumm and Fisher who have carried on this work with the utmost care and the greatest enthusiasm.

Dr. Lawrence Litchfield, Pittsburgh: I wish to emphasize the importance of this work to the internist. We have a great many patients who come to us complaining principally of dizziness; and it is only by means of the Bárány tests, as elaborated by the speakers, that we can determine whether the dizziness is due to a lesion of the cerebellum or of the labyrinth, or whether we must seek a cause elsewhere, as in some form of toxemia or neurasthenia. We must familiarize ourselves with this work and add it to our armamentarium.

Dr. George W. Mackenzie, Philadelphia: I have been interested in the subject of vertigo for the last ten years and naturally am in a position to appreciate the work these gentlemen have been doing. The subject is a rather technical one and there is still much to be learned. Furthermore, it is an important one as evidenced by the exhibition and the papers today.

I wish to speak more especially on the subject of technic. The fixation or "blick" apparatus of Bárány has been mentioned as having been used by some of the gentlemen. I wish to condemn it as valueless and liable to mislead one. For instance, in using the "blick" apparatus straight in front of the eyes, the patient converges, and in so doing, inhibits the full play of the vestibular reflex on the eye. When the patient looks to the side, away from his nystagmus, the vestibular reflex, as manifested by eye movements, is inhibited, and when he looks toward the side of his nystagmus, the reflex is accentuated. The reason for this variation in the intensity of the reflex when looking to the two sides cannot be due to intensity of the impulses from the labyrinth, but to some extraneous influence, and that influence is the tension put on the extra-ocular eye muscles when looking to the sides. It was because of the use of the "blick" apparatus and examining for the vestibular reflexes with the patient looking to the sides that Bárány was led into such discrepancies in his findings for after-turning nystagmus which he claimed to vary from 1 to 120 seconds after ten turnings and was led furthermore to conjecture that the normal reaction for after-turning nystagmus varied from 20 to 40 seconds after ten turns. The avoidance of the "blick" apparatus and counting the after-turning nystagmus with the eyes directed forward led me to conclude that after-turning nystagmus for normal individuals after ten turns was 24 seconds and quite consistently so. My findings were based on experiments covering a period of ten years and have been published from time to time during this period. I am glad to note that at least two independent investigators here this morning have been able to corroborate my early findings.

In differentiating nystagmus we have the oscillatory and the rhythmic. An oscillatory nystagmus due to a visual defect may become typically rythmic when looking to the side. Again, a normal individual may manifest a rhythmic nystagmus when looking to the extreme right or left which is purely physiologic. It has been said today that vestibular nystagmus is always associated with vertigo. On the contrary, I have produced vestibular nystagmus of mild degree by galvanic stimulation without the patient experiencing vertigo.

Someone mentioned that the absence of reaction to the usual tests indicates the presence of a destructive lesion in the labyrinth or nerve, but he did not specify which. There is but one test that will positively tell whether the lesion is in the labyrinth or the nerve, and that test is the galvanic. About nine years ago Neumann found that the nerve trunk remained reactive after the labyrinth was destroyed, in fact, after it had been removed. On the strength of his discovery, I followed up the galvanic method of testing with experiments on numerous cases of deaf mutes and other pathologic cases of different kinds and published the findings in the *Archives für Ohrenheilkunde* in 1908. The conclusions then published and since corroborated were as follows: In a case presenting itself with the symptoms of sudden loss of hearing, and vertigo, with nystagmus to the sound side, where the caloric test is negative and after-turning nystagmus to the diseased side is markedly reduced, there may be a lesion in either the labyrinth or nerve. If the galvanic reaction is positive, the lesion is in the labyrinth; if the galvanic reaction is negative, the lesion is in the nerve.

WHAT CAN BE DONE TO IMPROVE THE MILK SUPPLY IN PENNSYLVANIA?*

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My acceptance of the invitation to present this paper is not to be construed as an indication that I think I possess the only solution to this problem, but rather as evidence of a willingness to enter into a discussion of the subject in the hope of bringing out useful facts and helpful suggestions.

It is encouraging to know that those who are familiar with the conditions previously existing on dairy farms and in distributers' plants in Pennsylvania are of the opinion that in general there has been a considerable improvement in the methods of producing and distributing milk in the last ten or fifteen years. Stables and cows are more generally cleaned, herds containing clinically tuberculous cows are less common, more attention is given to cleanliness in milking and to cooling the milk, distributers are better equipped to care for and deliver milk, there are fewer arrests for skimming, watering or the addition of preservatives, and samples of milk collected in cities and towns test better, as a rule, in regard to the number of bacteria and the presence of pus cells and streptococci. All this is very encouraging, but there is still need for further improvement.

During the years 1911, 1912 and 1913, about one fifth of the 190,000 dairy farms in Pennsylvania were visited by agents of the State Live Stock Sanitary Board, who made an examination of the cattle for health and cleanliness and inspected the sanitary conditions of the premises and the methods of producing and caring for the milk. (No inspections could be made in 1914 and 1915 because the resources of the board were taxed to the limit by the prevalence of foot and mouth disease, or aphthous fever.) The farms inspected were classified, according to the conditions found, into four groups: "excellent," "good," "fair" and "bad." A few farms were classed as "excellent," from 30 to 40 per cent. were classed as "good," 50 to 58 per cent. were scored "fair" and 8 to 15 per cent. fell into the "bad" group.

On the dairy farms classed as "excellent" or "good," the conditions were favorable to the production of milk of good hygienic quality, on those classed as "bad" the conditions were quite the opposite, while the farms classed as "fair" stood on the border line between these two classes. Although these figures cover only a small portion of the dairy farms in the state, they can probably be accepted as representative of the conditions in general throughout Pennsylvania because the farms inspected were located in all parts of the state.

"What Can Be Done to Improve the Milk Supply in Pennsylvania" is therefore a very pertinent question. There are three groups of individuals involved in this question, namely, (1) the producers and distributers, (2) the public health officials, and (3) the consumers. What is the attitude of these different groups toward the proposition under discussion?

Producers who are really dairymen, i. e., those whose chief business is the production of milk, have changed their attitude toward dairy inspection in recent years. They have discovered that many of the methods recommended for sanitary reasons are also good economically. Brushing the cows, wiping the udder, removing the manure from the stable, light and ventilation in the stable, sterilizing the milk vessels, and cooling the milk are all now regarded as good dairy practices, and are taught in the dairy schools, because experience has demonstrated that they increase production, help to maintain the cattle in health, facilitate the work, and avoid losses and complaint on account of spoiled milk. These discoveries have overcome to a considerable extent the prejudice and suspicion which formerly existed in regard to dairy inspection, but there are other conditions which do not meet with the approval of dairymen. The most important of these are duplication of inspections by different municipalities or by different departments of the state government, multiplicity of regulations, untrained inspectors, frequent changes in regulations involving alterations in buildings or equipment, requirements in regard to buildings or equipment which are expensive and not absolutely essential, careless or ill founded statements regarding the effect of milk on the health of the consumer, and the drawing of regulations by men who have no practical knowledge of the dairy business. Finally, the dairyman considers it an injustice that he should be required to adopt methods which involve additional work or added cost for labor or material without a corresponding increase in the selling price of his product. He points out that while sanitary requirements have in recent years increased his cost of production, everything he buys has also advanced in price.

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* Read at the General Meeting of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 20, 1916.

Statistics compiled by disinterested men show that this is true. In the last five years, the cost of farm labor in Pennsylvania has advanced 12 to 17.5 per cent., and the price of milch cows has increased 38 to 52 per cent. By-products like cotton seed meal, dried brewers' grains, dried beet pulp and malt sprouts which are used for feed are from 20 to 40 per cent. higher today than ten years ago and the prices of other feeds have advanced from 10 to 15 per cent. The market value of home grown feeds has also increased very much. Clover hay shows an advance of 58 per cent. since 1906. Within the last eight years the freight rates on milk shipped into Philadelphia, which the dairyman usually pays, have increased 50 per cent. in general and in some instances 77 per cent. And during this same period the price which the dairyman receives for his product has remained stationary or advanced very slightly.

The position of the distributer is similar to that of the producer. Sanitary regulations requiring the bottling of milk, pasteurization, etc., have added to his expense, while wages and the cost of horses, feed, wagons, etc., have also increased, but in most cities and towns the retail price of milk has remained the same.

The economic conditions affecting the production of milk have driven many general farmers, with whom dairying was a side line, out of the business. At the same time, an undesirable foreign element has taken up dairying in the neighborhood of some of the large cities. These people are able to produce cheap milk at a profit because they occupy a small piece of land with very cheap and inadequate buildings in districts where they can graze their cows on vacant lots; in some cases they feed their cows on various kinds of refuse, and they usually have large families, all of whom work in the dairy. Their standard of living is low and they have little or no conception of cleanliness.

The attitude of local health officials toward the milk supply of their town is very variable, ranging all the way from total neglect to overzealousness. The attitude may also change very suddenly. A local health board which has for years entirely ignored the condition of the milk supply will sometimes be stirred up by some unpleasant occurrence and will then adopt the most stringent regulations for the guidance of dairymen and expect conditions to be changed at once from the undesirable to the ideal. Sometimes, elaborate regulations are promulgated without any means of enforcing them. In such cases, the dairymen who obey them are likely to think that the men who ignore them are being favored by the health officials. The consumer is also given a false sense of security. Regulations are sometimes adopted requiring expensive alterations or equipment which are not absolutely essential to the production of wholesome milk. Very few local health boards seem able to employ properly qualified men as dairy inspectors. Dairymen very naturally resent being advised in regard to their business by one who knows little or nothing about it. Local health officials do not always show sympathy for the difficulties of the dairymen. This is not due to any disposition to be inconsiderate but rather to an inability to appreciate the technical and economic problems with which the dairymen have to contend. Perhaps the principal cause of the errors of local health boards is the absence from the membership of any one with a practical knowledge of the dairy business.

Consumers in general seem to be less interested in the condition of the milk supply than the individuals in the other two groups concerned. Many consumers do not recognize hygienic quality in milk. They seem to be interested only in the price and the amount of cream. If these are satisfactory and the milk holds together until it is used, they are usually contented. People who buy the best grades of other articles do not usually buy the best grade of milk. Comparatively few wealthy people buy certified milk. A Philadelphia milk dealer states that he has been told by well-to-do physicians and other people in comfortable circumstances that they would not pay the price of certified milk. The bulk of this grade of milk is sold to people who purchase it for their children on a physician's order and they usually buy it only as long as this special need exists. This general indifference of consumers in regard to the hygienic properties of milk has made it possible for the careless or ignorant producer with unsuitable equipment to compete with the careful dairyman, who is trying to produce a high grade of milk. Consumers are being slowly but steadily educated, however, in regard to the hygienic properties of milk and the demand for good milk is gradually growing. The ability of the general public to distinguish between good and bad milk is limited. Milk which spoils or which has an abnormal taste or odor can be readily recognized but milk may be possessed of some very undesirable properties and still have the appearance and taste of good milk. The consumer alone cannot always distinguish between good and bad milk or between milk of good or poor hygienic properties. His city or state government must do this for him, or help him to do it himself. Some of the indifference of milk consumers to the hygienic properties of milk may be only apparent and may be due to this fact.

These are the conditions as they exist today. How can they be improved?

One of the requirements indicated by the present conditions is a single, uniform system of inspection, directed and carried out by men who are qualified by training and experience for the work. This would avoid duplication of inspections and multiplicity of regulations, and would also provide the means for efficient but reasonable regulation. At the same time, it would prevent a producer whose milk is shut out of one municipality from sending it to another; it would provide small as well as large communities with competent inspectors, and would overcome many other defects of the present system.

A uniform inspection system could be most readily established by placing the work in charge of one of the departments of the state government. The department which appears to most fully meet the requirements of the situation is the State Live Stock Sanitary Board. This board consists of the governor, the secretary of agriculture, the dairy and food commissioner and the state veterinarian. All of the groups of individuals concerned in the problem of a good milk supply are represented in its membership except the public health officials, but the work of inspecting the dairies would necessarily have to be taken up in consultation with the local health officials of the municipality in which the milk is sold, so that this group would also be represented.

Another requirement which seems to be indicated is the grading or classification of milk, i. e., certain well-defined grades should be established by state authority, based on the conditions existing on the dairy farm and the bacterial count, and all milk offered for sale should be labeled according to this classification. At the present time in Pennsylvania there is no official definition of the names under which milk may be sold except in Philadelphia, and even in that city the indiscriminate use of terms like "baby's milk," "nursery milk," etc., is not prohibited.

Under the present conditions, outside of Philadelphia, milk produced under good sanitary conditions is sent to a distributer who also receives milk produced under objectionable conditions and the two kinds of milk are mixed before delivery to the consumer. The entire milk supply is reduced in hygienic quality to the level of the lowest. There is no incentive for a dairyman to produce good milk under these conditions.

The grading of milk, if properly carried out, is just and equitable to all parties concerned. The product of the careful, conscientious dairyman will be graded higher and can be sold for a higher price than the milk produced by the careless and indifferent man. Milk consumers will be able to distinguish between good and bad milk; those who desire good milk and those who are satisfied with milk of a low grade at a low price will find it convenient to purchase the kind of milk they prefer. The distributers who deal in a high grade of milk and those who deal in a low grade will be classified accordingly. Milk will be sold according to quality, like other commodities.

Grading milk is not an untried proposition, but has been in operation for several years. In New York City, where the system has been in use since 1912, the results have been entirely satisfactory. It has stimulated dealers and producers to put forth greater efforts to produce a high grade of milk and has improved the general character of the city's milk supply. A law which went into effect in November, 1914, requires that all milk sold in the state of New York shall be labeled according to certain specified grades. This law has brought about a very marked improvement in the milk supplies of the various communities of the state, especially in cities having a population of over 10,000. Milk has been graded in Philadelphia since 1914 and has brought about a general improvement in the milk supply of the city. Under the Board of Health of Radnor township, Delaware county, the grading of milk has improved the dairies in that district, bringing about improvements which placed those formerly scored as "bad" in the "fair" and "good" classes.

In some of these places, the producers and distributers were at first hostile to the grading of milk but after they became acquainted with the operation of the system they regarded it with favor. There was also some difficulty in regard to labeling the different grades of milk until the distributers became familiar with the regulations and had an opportunity to arrange to comply with them. At the present time, everybody concerned seems entirely satisfied, although in some localities consumers are indifferent.

It is not possible, within the time allowed for this paper, to enter into detail regarding the specifications of the different grades of milk. In conclusion, therefore, in answer to the question, "What can be done to improve the milk supply in Pennsylvania?" I would say: Establish a uniform system of inspection under state control and require milk to be graded and sold according to an officially defined classification.

Thirty-Ninth Street and Woodland Avenue.

DISCUSSION

Dr. Theodore B. Appel, Lancaster: Dr. Klein's paper places before the Society in a general way the milk question from a sanitary standpoint. He points out the necessity of control and its difficulties in dealing with the three factors involved, namely, the producer, the consumer and the health authorities or inspectors, and recommends as the necessary points for the improvement of conditions a standardization of the inspection and the introduction of definite grades of milk to be determined by inspection and labeled and sold as such. In discussing the paper any remarks I may have to present have to do with personal experience in the board of health in a comparatively small town, situated in a rich agricultural community with rather high grade dairies and farms and my views might have no weight where the question of milk supply for large centers of population is considered. Lancaster is a third-class city of from 50,000 to 60,000 including its suburbs, which must be considered in handling any food problem. Its milk supply is derived from 276 dairies and supplied to the consumers by fifty-five dealers.

For convenience the board of health has divided the dealers into three classes: (1) Those who produce and market their own product; (2) those who market not only their own product, but buy milk from other farmers who do not have any milk route; and (3) those who run milk routes in town and have nothing to do with production whatever. In addition we have one large milk company which buys in gross not only from our county but also beyond its borders. The classification of the dairies themselves: two excellent, thirty-nine good, 156 fair and twenty bad, corresponds closely to Dr. Klein's percentage. The milk is examined at least once every two months by the city bacteriologist as to its physical characteristics and number of bacteria present. The average rating of repeated examinations considered with the annual dairy inspection brings out very markedly that the best milk and the best kept dairies are those belonging to our Class A dealers, those who market their own product, while the poorest records are those of the dealers who simply have a milk route.

While theoretically we believe in the grading and labeling of milk, our attempts have been violently opposed by the dairymen themselves and the public has not been educated sufficiently to be a factor in the case. We agree also with the criticism of Dr. Klein on the lack of standardization of inspection and also of the character and attainments of the official inspector, but until we have evidence of more efficient control by the state we prefer to keep up our own municipal inspection and regulation, imperfect though it be. It, of course, must be admitted that with a proper number of qualified inspectors under the control of a central authority and governed by definite standards an ideal result would be obtained, provided always that the public could be sufficiently educated to support the project, but the inspection must be continuous in character. We believe, however, that the Bureau of Health should control all food and milk questions rather than the State Live Stock Sanitary Board.

Dr. H. F. Smyth, Wayne: It is a matter I am very much interested in and I live in Radnor Township to which Dr. Klein referred. We have been classifying milkmen in our community. We find the classification of milk working out very successfully. As to several of the points Dr. Klein made, I would like to allude to the value of the trained milk inspector. We employ a trained veterinarian who makes a splendid dairy inspector. All our dairy scoring is done by this inspector. I have gone out with him a number of times; he does splendid work, and is an excellent missionary for improving dairy conditions.

We attempt to do as little policing as possible. All our efforts are on the educational line and we have succeeded remarkably well. We have gradually worked up to our present condition. We have succeeded in getting the public with us largely. We publish the scores of our dairies every three months in the local papers. They are published with the classification and, while we started first with simply publishing the better classes, within the last year we have published all the classes. Now we publish the names of all classes. We have several different classes. Our excellent dairy class is as good if not better than certified milk. We do not put in this class the Philadelphia Pediatric Society certified milk because we prefer to control this milk by our own dairy inspecting; the dairy as a whole is inspected, including each individual cow. We make at least three different tests before we make any report. We attempt to improve where the dealer is falling away and we are largely successful. We have an "excellent dairy class" that must have a bacterial count below 10,000, must have a dairy score card above 90. Our "good dairy class" has a bacterial count under 100,000, dairy score card above 80; a "fair dairy class" which any producer should be able to meet, with a dairy score over 70 and bacterial count half a million or under and must show no pathogenic organisms, gas producers or peptonizers. Our tests are made by the State Live Stock Sanitary Board laboratory in Philadelphia. Our inspector works in conjunction with them and we work in harmony with them right along. We prefer, though, to have our own inspection so we can have our own regulation.

One point that has been brought out by others here is that wholesalers are in the poor dairy class. We have in the last report two dairymen in the excellent class who do not sell retail; they wholesale all their milk.

Dr. G. E. Holtzapple, York: Very much the same conditions exist in York County as in Lancaster County. In addition to inspection it would be well to lay emphasis on systematic instruction. I believe if a systematic effort were made to instruct the farmers that there would be many who would be willing to improve the character of their product. We should not only instruct the farmer, but also give systematic instruction to the distributer. If the state would supply printed matter which would explain to the farmers just how to improve their product and not only tell them by personal instruction, but from time to time by printed matter which they could preserve and consult and study, I believe it would do much good. It would be looked on by the farmers and distributers as authoritative. In the public press every now and then we have articles on how to improve the condition of the milk. I do not think the farmers take heed to that nearly as much as they would if the state inspectors supplied literature from which they might glean what they ought to know, because it would be authoritative.

Dr. W. S. Gimper, Harrisburg: The varied and extensive experiences of Dr. Klein in the field of milk hygiene qualify him to speak authoritatively on the subject of needed improvements. In the paper it was pointed out very modestly that 8 to 15 per cent. of the examined dairies were in the "bad class"; they could more properly be classed as horrible. Classifying these dairies as bad meant that *all* conditions were such that they could not comply with even the most moderate sanitary requirements and that the milk produced and handled on the premises should be regarded as unwholesome. The dairies of the bad class comprise the most serious phase of the milk improvement problem. The owners are not amenable to suggestion or moral coercion, nothing but the heavy hand of the law will bring them to a realization of their crimes against public health. They are not only a constant menace to health but are also a detriment to the entire dairy industry. As Dr. Klein has stated, the milk from such places is usually mixed with the clean milk produced by careful dairymen and the hygienic quality of the entire supply is lowered to the level of the filthy dairy. Much time and effort has been spent in an attempt to educate this class of dairymen, with practically no good results. The improvement in methods to which Dr. Klein refers as "encouraging" has not been found among the "bad" dairies but in those which were classed as fair and more largely those in the good class. This type of dairymen is usually ready and willing to make any reasonable changes which will tend to improve the quality of his products. Fortunately the percentage of extremely bad places is relatively small and if it should be necessary to exclude their products from the market, there would be no marked effect on the general supply, so far as quantity is concerned. If you eliminate the unfair competition of bad dairies, the better class of dairymen will be encouraged to a larger production.

It is an easy matter to point out conditions in and around dairies which do not meet the approval of sanitarians and other persons interested in public health; but Dr. Klein has drawn attention to "other conditions which do not meet the approval of dairymen." Among others, he mentions embarrassing regulations. This factor I fully believe has retarded rather than assisted improvement. A sudden increase of milk-borne diseases, or public sentiment, will stir a local board of health to activity. An investigation reveals disgusting conditions, the board is properly shocked and in its wrath proceeds to adopt and enforce drastic regulations which are far more esthetic than practical. The dairyman realizes the hopelessness of complying with such regulations at the price he receives for milk, consequently does nothing. Under present conditions the board of health is powerless; if the regulations should be enforced and the questionable milk excluded from sale, the dairyman will find a ready market at a nearby creamery, or in some other municipality, until the board relapses into its former quiescent attitude. We have a classic example of this condition of affairs in one of our progressive cities of the third class. The city officials have made an earnest effort to improve the milk supply. They are met with the open statement from the dairymen that a certain manufacturer will pay them as much for their dirty milk as the city dealers will pay for clean milk.

In neighboring states which maintain supervision of milk production, a condemned dairy near the border will divert its product to Pennsylvania, where it finds a ready market owing to the absence of any prohibitory law.

Another, and no doubt the most serious objection to improvement is the inadequate remuneration which the dairymen receive. It has been proved that "the production of a clean and safe milk is a comparatively simple process, easily within the reach of all careful dairymen if paid a price sufficient to induce them to become genuinely interested." A discussion of the cost of production and distribution of milk would be endless. However, numerous investigations clearly show that a large amount of milk is now being produced at a loss and if there is to be a general improvement in our milk supply, it will involve an increase in cost of production which must be borne by the consumer. As pointed out by Dr. Klein, the increased cost of all items pertaining to production without corresponding increased remuneration has almost made the dairy a liability instead of an asset to the farm. A part of the increase in cost of production can be met by increase in amount of production and better business methods in the dairy. The reports of milk testing associations and investigations by competent authorities show that about one third of the dairy cow population is being maintained at a loss to the producer. At present cost of maintenance and income from products, a cow giving less than 5,000 pounds of milk per year will be unprofitable. The producer's view of this situation is that he should receive a price for the milk which would make the low producing cows profitable, until he can breed up a high producing herd which requires several generations.

We are pleased to note that Dr. Klein has given attention to the disinterested, and in many instances opposing, attitude of the consumers towards improvement in the milk supply. We hear many complaints of inferior milk purchased at a low price when the complainants are fully aware that a better grade can be obtained at an advance of 1 or 2 cents per quart. The consumer is placed in the position of demanding a higher quality and more palatable product without increased remuneration to the producer. This condition appears to apply peculiarly to milk and not to other food products and articles of commerce. In connection with other complaints, usually from small municipalities, the consumers state their willingness to pay a premium for quality but are unable to obtain the better grade. If special milk is offered to them as a superior article, they are unable to distinguish it from the average market kind. The suggestion to sell under a system of grading established by state authority will assure discriminating consumers that they are getting the quality for which they are paying a premium. Milk of questionable wholesomeness should not be furnished even to indifferent consumers;

as a preventive measure all milk of questionable origin should be properly pasteurized, but pasteurization should not be construed as a substitute for cleanliness.

One important phase of milk hygiene work, to which especial attention was not given in the paper, is the apparent necessity for supervision of creameries, condensaries, cheese factories, receiving and skimming stations and country bottling plants. It is a notorious fact that some creameries and condensaries receive milk of the poorest hygienic quality. The last resort for a dirty or condemned dairy is the creamery or condensary, where unwholesomeness is concealed by the manufactured product. There are about 800 such plants in Pennsylvania, most of which are in fair condition, some are models of neatness and are conducted with scrupulous care. The operators of these sanitary plants often complain to the state authorities of the dirty milk delivered by farmers and request assistance to correct improper conditions. Competing with these good creameries there are quite a number of plants which are indescribably filthy and operated by careless employees who have not the slightest regard for cleanliness and sanitation. Recently a creameryman was convicted in the criminal court on a charge of delivering unpasteurized skim milk to be used as food for calves and swine. The creamery was in a disgusting condition and while it was possible to protect the calves and hogs, there was no law to protect human consumers from the unwholesome products.

In summing up his answer to the question, "What can be done to improve the milk supply in Pennsylvania?" Dr. Klein has offered a suggestion which must be accepted as the basis for any concerted effort in that direction, namely, "state supervision under centralized authority." In exercising such authority our efforts should primarily be directed to developing, upbuilding and improving the dairy industry in all its branches, and not used as police power to punish offenders except in extreme cases of wilful and persistent violations of reasonable requirements. As the industry develops and becomes more profitable, an improvement in the milk supply will naturally follow.

Dr. Joseph W. Albright, Muncy: A few years ago the farmers in my neighborhood had dirty stables; today they have clean stables because I have educated them. I have not been afraid to go to a farmer and say "Your stable is not clean," and tell him what to do. If we take interest in the subject we will see a great improvement. There is no doubt but what an effort on the part of physicians would be very effectual in enlightening and educating the farmer and milk dealers in the sanitary care and handling of milk. Since the physician is the one who realizes the great importance of clean milk and the grave danger of infected milk, it is his duty to enlighten and instruct the handler of milk in the most minute detail as to where and how he can prevent contamination.

It will be gratefully received by them when at the same time you are able to make them realize that it raises the standard of their milk to keep clean cows, clean stables, clean receptacles and above all the milk screened from flies. I have in mind now several of my farmer friends and neighbors who a couple of years ago kept unclean stables and cows. I convinced them of the great importance of better sanitation and today they are proud to call my attention to some very great improvements.

Dr. J. B. Carrell, Hatboro: The arguments and deductions in Dr. Klein's paper are very good. In a question like the one under discussion there are three parties to be seriously taken into consideration: (1) the producer; (2) the consumer, and (3) the distributer. Very little has been said of the principal party in this business, the producer, the one on whom the others must rely. If the producer is not allowed a reasonable profit he must abandon his business and turn his efforts and attention to one with a profit. We have a producer of good sanitary milk with us now. I asked him how much he got per quart for his milk; he said, "9½ cents." I then asked, "Does it pay you?" His reply was, "It does not." Fortunately for the consumer of the milk produced at Dr. Frazier's dairies he is circumstanced financially to continue in the business at a loss to his pocket book, but unforunately for the consumer and distributer not 1 per cent. of the milk producers are so circumstanced. I have visited the dairies of Dr. Frazier, and I know he is conducting them as economically as he can, taking all things into consideration.

I am not a novice in the production of milk, for it was my misfortune to have a fine 125-acre farm less than 20 miles from Philadelphia for twenty years, and kept from one to twenty-five cows on this farm. We shipped the milk to Philadelphia by train and received from 3 to 4½ cents per quart, and paid one-half cent per quart for freight. You will be surprised to learn from accounts accurately kept that there is more profit in one hundred chickens scurrying around the farm buildings, picking up the wastes, than in the twenty-five-cow dairy. In fact, gentlemen, I never made a cent on that farm as long as I kept cows. As soon as the dairy was reduced to one cow the farm paid me a small profit, and the money I made in the practice of medicine was for us and not for that farm and dairy. There is no use in shutting our eyes to the fact that sanitary milk cannot be produced on the farm for less than 6 or 7 cents a quart. I do not know of a farmer in our community who has made money by keeping a dairy, and for this reason the dairies in our section have practically become extinct. It is absolutely impossible to comply with the requirements of our health department (these requirements are right) and produce milk at a profit at the prevailing price.

An officer of the health department called on a lady in my practice, who owns a beautiful farm near Dr. Frazier's model farm, and informed her she must make certain expensive alteration to her dairy surroundings. She is a good business woman, and the dairy was wiped out; and now the prettiest meadow of about thirty acres has not a cow on it. For scores of years the kine on this lovely and picturesque meadow was a pretty picture to look on, but the brusque orders of the man of the law put that meadow to corn. Of course it is to the owner's profit. And so, one after another of our fine dairies have gone until they are practically extinct, and it is becoming a question of where shall we country people get our milk?

My two brothers were very successful farmers; they farmed for profit, not for sentiment; they kept *a* cow, not cows. They have sold their farms and retired and spend their winters in Florida or California.

There is a "colored gentleman in this woodpile," and that "nigger" is the "distributer." Rid yourself of him and the farmers will again put on the cows. My suggestion is that the municipality must deliver the milk to the consumer. An army of inspectors is employed to watch the quantity and quality of milk. Put these fellows to work as distributers, and at the same time they can investigate the quality and measure the quantity. Charge the dairyman 1½ cents for distribution; pay the railroad one-half cent per quart for freight; charge the consumer 9 cents for the milk, and the ordinary dairyman will get 7 cents for his milk. This is the only solution just to the consumer and producer. The distributer has been a bone of contention for many, many years. He has grown rich, and the dairyman poor. Let him retire and enjoy his ill-gotten wealth from the consumer and producer, and the cows will again be on the farm.

Dr. Klein, closing: I do not know that I have anything to add to what I said in my paper. Sometimes, when local municipalities have a standard which the ordinary farmer does not wish to meet he takes his milk to a creamery. Many creameries are glad to get milk of any kind. I did not, however, make special reference to the fact, and I am very glad that Dr. Gimper brought it out because I believe it is an important point.

Dr. C. H. Miner, Wilkes-Barre: Dr. Klein's paper is excellent, and he has discussed, to my mind, the most important public health matter for the state of Pennsylvania.

We do not have in Luzerne and Lackawanna Counties the same conditions that exist in Lancaster County, as we receive a large proportion of our milk from other parts of the state, especially from farms along the Susquehanna River. It is very annoying to see that a large part of the best milk produced in Pennsylvania along the route of the Lehigh Valley and other railroads goes into New York City in refrigerated cars. As the Board of Health of New York City has strict regulations, it is necessary for the railroads to transport this milk in a sanitary manner. The milk that comes into Wilkes-Barre and Scranton comes uninspected in cars without refrigeration.

It is time for the state of Pennsylvania to take some action to prevent the best of our milk going into New York City and to see that the people are guarded against the products of the "bad" dairy.

The Public Health Committee through the cooperation of the State Live Stock Sanitary Board have presented a resolution which will be voted on by the House of Delegates this morning (See Journal for November, page 140).

Now the first thing is to get a law, and to get this law the state medical society must do something to educate the members of the legislature, and after getting a law we also will need work in our own towns to enforce it or secure proper health officials. (This resolution was unanimously adopted by the General Meeting with the request that the proper delegate present it to the House of Delegates for action thereon.)

The clinical picture of diabetes in a child with its fearful rapidity and the almost immediate development of acidosis leading to death in a few months has very little in common with the slow benign course of the malady in elderly adults.—Nellis B. Foster.

FECAL INCONTINENCE*

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Fecal incontinence is the involuntary discharge of feces and flatus, which follows loss of sphincteric control. It is not accompanied by pain, but mental suffering is great because gas and feces involuntarily escape without warning and an offensive odor is attached to persons so afflicted. These sufferers are otherwise healthy and obtain little sympathy, but fecal incontinence makes the patient nervous, irritable, despondent, and unfits him for social or business duties.

Loss of sphincteric control may be congenital or acquired and is often due to poor surgery or improper treatment of anorectal wounds.

Fistula operations are frequently responsible for fecal incontinence, but the condition will become rare when surgeons learn properly to operate and treat fistula in ano, cease divulsing the sphincter rapidly with the fingers and mechanical dilators, and abandon Whitehead's operation for hemorrhoids.

ETIOLOGY

The cause of fecal incontinence may be *nonoperative* or *surgical*.

Chief among the nonsurgical factors, responsible for sphincteric incompetence, are congenital defects, injuries and diseases of the brain or spinal cord, undeveloped sphincter, anorectal accidents, chancroidal, phagedenic, syphilitic, tubercular, entamebic, balantidic, mixed infection, and other ulcers or cancer that impair or destroy the anal muscle. Occasionally fecal incontinence is caused by an injury received during labor, from falling upon a sharp object, the evacuation of enteroliths, impacted fecal masses or foreign bodies, insertion of imperfect syringe nozzles or introduction of the speculum, proctoscope or bougie. Fecal incontinence often precedes death, and occasionally complicates old age wasting diseases, chronic alcoholism, neuritis, uremia, acute febrile diseases, sepsis, ptomain poisoning, locomotor ataxia, and neurogenic disturbances. Loss of sphincteric control is sometimes caused by muscle fatigue, brought on by diarrhea, straining or prolonged muscular spasms. The writer has observed incontinence from protruding hemorrhoids, polyps, and procidentia recti that prevented the sphincter from contracting, and it has been induced by heatstroke, profound shock, fright and psychic emotions.

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* Read in the General Meeting of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 20, 1916.

The operations frequently responsible for this condition are performed for fistula, hemorrhoids, ulcers, fissure, stricture, cancer, congenital anorectal defects, and constipation.

Fistula operations commonly cause incontinence, though the calamity is avoidable where the sinus is correctely operated on and treated. Fecal incontinence occurred in 1 per cent. of a thousand fistula operations performed on private patients by the writer, and loss of sphincteric control rarely followed in his clinic work except where postoperative treatment was carried out by a nurse, intern or inexperienced assistant. A study of these operations has shown that fecal incontinence and failure to cure fistula are usually due to imperfect technic or improper postoperative treatment, such as cutting the sphincter obliquely or zigzag fashion, instead of at a right angle; firmly packing, instead of lightly draining the wound, permitting skin or mucosa to grow into the cut, destroying healthy granulations by cauterization, unnecessary pulling apart or probing the wound, permitting dressings to become soaked with pus, which delays healing, and needlessly dividing the sphincter at two or more points. Formerly the writer believed fecal incontinence was due to severing the internal and external sphincters, but he no longer hesitates about dividing both when indicated.

To cure fissure in ano the writer has split the anal canal, sphincters and part of the levator-ani muscle in six hundred cases, without causing fecal incontinence. The anal muscle was divided two or more times in two hundred fistula operations, and sphincteric control was lost in but 1 per cent. of the cases.

Following division, the sphincter ends may unite, but in most instances a new segment of muscle forms, or the intervening space fills with elastic tissue that contracts harmoniously with the muscles. The writer does not understand how nature reestablishes continuity of this thin muscle where its ends are kept apart during healing, and contractions of the sphincter and puckering from cicatricial tissue keep the muscle ends supported on different levels so they cannot approximate accurately.

When operating for procidentia recti, epithelioma, diverticula and encysted foreign bodies the writer several times removed sections, half an inch in width, from the sphincters without causing incontinence, and it is unreasonable to suppose that the muscle ends united in such cases.

Fecal incontinence is encountered more frequently in women than men, owing to injury caused during labor and difficulty of obtaining sphincteric control following anterior and lateral division of the anal muscle in fistula operations, because contractions of the sphincter vaginae keep edges of the cut apart.

Muscular activity of the lower rectum partially accounts for the slow healing of anorectal wounds, patulous ani and partial fecal incontinence.

Where incontinence follows correct division of the sphincter, the patient usually suffers from a constitutional, wasting or nervous disease, or the brain or cord center presiding over the muscle is diseased or injured.

Hemorrhoidal operations cause incontinence when a piece or all of the anal muscle is removed or the sphincter is lacerated by divulsion. The writer has treated twenty-five patients for partial or complete incontinence, caused by Whitehead's operation, where the sphincter had been injured or incapacitated from resulting scar tissue.

Partial or complete loss of sphincteric control, has been caused by splitting the rectum for nonmalignant and cancerous stricture, where postoperative treatment was negligently or ignorantly carried out. Extirpation of the rectum for cancer, stricture, procidentia recti and ulceration is occasionally responsible for incontinence because both sphincters are excised or nerves controlling them are destroyed.

Incontinence frequently complicates imperforate ani and congenital defects of the rectum, since the muscle is weak, absent, or has been disabled by fibrous bands and operations performed to relieve constipation and rectal obstruction.

The writer treated a man for complete incontinence, induced by the removal of a section of the sphincter during Ball's operation for pruritus ani. The extent to which sphincteric control is lost varies, and may be trivial, slight, moderate or complete. Trivial is evidenced by staining of the clothing, slight by involuntary escape of gas, moderate by leakage of gas and fluid feces, and complete by the frequent involuntary escape of gas and fluid or solid feces.

SYMPTOMS

The chief complaint is the involuntary discharge of flatus and feces at inopportune times, and the extent to which they escape depends on the degree of incontinence, consistence of the stools, and nervousness of the patient.

Involuntary movements are more numerous during attacks of diarrhea than constipation, and when the patient is worried, excited, becomes overheated, or indulges in active exercise or alcoholics.

Individuals with incontinence deserve the highest sympathy, because they are ostracised by society, are often unable to keep business engagements, and realize a disagreeable odor emanates from them. The ano-gluteal region of those afflicted is usually moist, inflamed, excoriated, and smeared or stained with mucus or feces. In mild, recent cases the patient has sufficient time, after warning, to reach the toilet before an accident occurs, but in old or aggravated cases an involuntary movement may take place any time.

When incontinence is moderate or complete, the anus is patulous or a gap covered by scar tissue is noticeable.

DIAGNOSIS

Fecal incontinence is easily diagnosed because the patient seeks relief from involuntary movements, but it may be difficult to ascertain what is causing sphincteric disability. It is advisable to find out if a disease, tumor or injury of the brain or spinal cord, psychic emotions, locomotor ataxia, apoplexy, wasting affection, acute fever, or a congenital defect of the anus or rectum, is causing the trouble, and if the patient has undergone an operation, where the anal muscle was cut. The lower rectum is then examined digitally and with the proctoscope to determine the degree to which the sphincter has been impaired by operation, ulcerative lesions, cancer, stricture, polyps, foreign bodies, hemorrhoids, procidentia recti, straining, fatigue or divulsion of the sphincter, and to learn to what extent scar tissue ties up or separates the muscle ends.

TREATMENT

Prophylaxis against incontinence consists chiefly in preserving the nerves and not nipping the anal muscle, in anorectal operations dividing the sphincter once and at a right angle when incising fistula, draining and not packing rectal wounds, preventing skin and mucosa from growing into the cut, avoiding cauterization of the wound, employing the fingers instead of mechanical dilators when divulsing the sphincter, and treating the patient for any local or constitutional disease interfering with the sphincter.

Nonoperative treatment is unreliable but, where leakage of gas or feces is due to a patulous anus, incident to nerve disturbances, emaciation, muscular atrophy, wasting disease, syphilis, or old age, sphincteric control can sometimes be improved by administering tonics and employing cold astringent injections, massage, vibration and galvanism to strengthen the sphincter.

An operation is indicated in cases of fecal incontinence induced by labor, injuries and anorectal operations where the sphincter or its nerve control has been lacerated, incised or removed.

A routine technic is impracticable, and the operation should be selected according to indications. The difficulty and extent of cutting necessary to relieve fecal incontinence depends on whether leakage is partial or complete, causation of the trouble, extent of the injury and damage to nerves controlling the anorectal muscles. The procedure is more difficult when the sphincter ends are separated by a broad than a narrow strip of cicatricial tissue.

Preparation for fecal incontinence operations consists in thoroughly emptying the bowel with laxatives and enemata, and then tying it up with morphin, flushing the rectum with hydrogen peroxid, 25 per cent., just before the operation, swabbing the bowel with an antiseptic and painting the perianal skin with iodin before work is begun.

Where the perineum and sphincter have been lacerated, causing complete incontinence, elaborate perineorrhaphy is performed, using chromicized for buried, and plain catgut for superficial sutures. After wound edges have been accurately approximated, so pockets are not left to catch septic material, and the suture line has been protected by a flap of mucosa, retention stitches of silk, linen or silkworm gut are introduced on either side of the anus.

Surgeons needlessly waste time in attempting to locate, free and suture the separated sphincter ends, which is often impossible, since they are thin, atrophied and cannot be isolated or tear apart. Formerly the writer attempted to correct fecal incontinence in this way but abandoned the procedure because valuable time was lost, general anesthesia was required, and results were unsatisfactory.

The writer's operation is performed under local anesthesia in ten minutes, and the technic, which is simple, embraces the following steps: (1) The tissues at, above and below the point of leakage are infiltrated with eucain (0.125 per cent.) until blanched. (2) The sulcus and adjacent cicatricial tissue are seized with tenaculum forceps, held, and excised with a diamond-shaped flap, including a segment of the rectum, the muscle ends and the skin by two incisions that cross the sphincter not less than half an inch apart. (3) The edges of the wound beneath the mucosa are accurately approximated by buried chromic, interrupted catgut sutures that pass external to and beneath the cut. (4) The mucosa is dissected free and, after a strip on either side has been removed, its edges are sutured with plain catgut, to the right or left of the wound to minimize danger from infection. (5) The skin wound is closed with plain gut and protected by gauze introduced into the rectum.

This procedure has given the most satisfactory results of any employed by the author. It has not been followed by serious complications, and deserves special consideration because general anesthesia is unnecessary. The operation requires but ten minutes and appeals to the patient because of its simplicity.

In seventeen cases thus operated on, results were as follows: Fecal incontinence was completely relieved in nine, diminished in five, slightly reduced in two cases, and no benefit was observed in one instance. Complete primary union was obtained in five cases, and in others one or more sutures were severed to provide drainage where infection occurred, but the results in the latter were nearly as good as in the former, for the gap between the sphincter filled in with muscle or pliable tissue that acted harmoniously with the remainder of the sphincter and prevented involuntary movements.

Where fecal incontinence is caused by operations and the formation of scar tissue that extensively ties up the anal muscle or nerves, operations having for their object approximation of the muscle ends are often impracticable. In such cases, fair control over semisolid and solid feces is obtained by cauterizing and forming a stricture in the lower rectum.

Among other procedures are the following: Willems splits the gluteus maximus muscle, draws the bowel through the opening and sutures it to the anal skin. Gursuny minimizes fecal incontinence by freeing and twisting the rectum on its axis before attaching it to the integument. Chetwood encircles the terminal rectum with muscular ribbons from the glutei muscles, a procedure employed three times by the author without relieving incontinence.

In deplorable cases where plastic operations fail to prevent involuntary movements, an artificial anus is established. Colostomy, as performed by the writer, gives almost complete control, but is objectionable except as a last resort, because patients dislike having an anus in the side.

Several times annoyance from fecal incontinence has been minimized by introducing a buried kangaroo tendon (or linen) purse string suture, on a level with the external sphincter, which stimulates the levator and the anal muscles to contract, become hypertrophied and strengthen the rectal outlet.

Sometimes, by patience and education, the levator ani muscle can be made to perform the functions of an impaired or destroyed sphincter ani. Plastic operations are not satisfactory where incontinence has been caused by Whitehead's operation or sphincteric divulsion made with the fingers or instruments, and cauterization is substituted for them.

Where the anus is patulous from muscular atrophy, overdivulsion induced by protruding hemorrhoids, procidentia recti or the fingers, and the patient stains his clothing, or complains of partial incontinence, the defect can be corrected by removing a segment and shortening the sphincter, cauterizing the anal canal, or introducing a buried chromicized catgut suture about the sphincter, which stimulates it to vigorous contraction.

The *postoperative* treatment in this class of cases consists in restricting the diet to fluids, regulating the stools, cleansing and protecting the wound, and prescribing morphin and belladonna to ease pain and quiet the anorectal muscles until the wound has healed.

PROGNOSIS

Partial or complete fecal incontinence lasting a few days is often observed following extensive fistula operations, where the sphincters have been severed, but the patient usually regains full control over the movements as the wound heals.

Multiple plastic operations for incontinence may be required, and they relieve or improve the condition where the muscle has been cut once or twice, but when the anus is markedly distorted, the sphincter has been removed or extensively involved by cicatricial tissue, incontinence may continue to a slight or deplorable degree in spite of all treatment.

In deplorable, inoperable cases life is made bearable by having patients wear a mechanical device that blocks the anus and prevents the escape of gas and feces at inopportune times.

INCONTINENCE IN CHILDREN

The writer has treated eleven children, seven boys and four girls, from 2 to 16 years old, who had no sphincteric control, with and without urinary incontinence, of whom three were otherwise healthy. In these cases there were no local lesions or signs of an operation that would account for involuntary movements. The cause of nonoperative fecal incontinence is difficult to detect, but in children it usually results from congenital defects, tumors or disease involving the brain or spinal cord.

The writer's cases of fecal incontinence occurred in mentally defective and nervous children, or youngsters in whom involuntary movements followed attacks of diphtheria, scarlet fever, ptomain poisoning, autointoxication, lowered resistance, meningitis, epilepsy, convulsions, infantile paralysis, deficient internal secretion, or who suffered from phimosis, spina bifida, disturbance in the ganglionic nerve centers, or wasting disease.

Children having fecal incontinence are often nervous from their affliction or punishment administered because they soiled their clothing or bed, and gas, urine and feces often escape without warning; hence, they are timid and shun the society of their playmates.

The diagnosis is based on the patient's having no control over the movements, and on the digital examination of the anus and rectum, which demonstrates that the sphincter and anorectal muscles are passive and offer no resistance to the movements, the fingers or the instruments. In such cases the anus is patulous and remains open following separation of the anal margins, or withdrawal of the finger or proctoscope.

When incontinence results from rectal lesions they are identified by their symptoms and digital or proctoscopic examination.

Children, underfed and depleted from any cause, recover when made strong by fresh air, nourishing food, tonics and administration of organotherapeutic agents, thyro-iodin, parathyro-iodin or epinephrin, which improve or restore sphincteric control when incontinence is due to deficient internal secretions. Fecal incontinence of children has been diminished or cured by removing adenoids, correcting nasal defects and circumcision, and injecting normal salt solution (100 c.c.) into the retrorectal space, one or more times in cases of incontinence associated with enuresis.

Where nonoperative measures fail, the anal canal is tightened by the insertion of a buried purse string chromic suture, on a level with the sphincter, or cauterization of the lower rectum.

In deplorable cases where fecal incontinence in children cannot be relieved by plastic operations or other therapeutic measures, a controllable artificial anus is established in the side or median line.

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DISCUSSION

Dr. Ira G. Shoemaker, Reading: It would be presumption on my part to enter into a discussion of this thorough and most excellent paper from a critical standpoint; but I may perhaps be of some service by emphasizing several points presented and adding a word or two.

Regarding the loss of sphincteric control the general practitioner is concerned in only two factors in the causation of this distressful condition; first, operations in the anorectal region and, second, accouchements. In my experience with rectal diseases, covering a period of some twenty years, I have seen several pitiable cases where care was not exercised and good judgment used in operating for fistula, by severing the muscle obliquely. I believe, where both sphincters are involved (although Mummery claims that the internal sphincter is in reality not a sphincter and is not directly concerned in the control of the rectal contents, it is not subject to the will as in the external sphincter, which besides being a voluntary muscle is endowed with a special sense, that of discernment of whether gas or feces is to be expelled) that the best results are obtained and where sphincteric control remains is in the use of the elastic ligature. This has not been touched on, and is not advocated by most rectal men; however, I have used it many times and can speak well for it. It is not very painful when properly applied, under local anesthesia, supported by a hypodermic of ¼ to ⅓ grain morphin, and as it cuts its way through the tissues it sets up an irritation which forms a good base and promotes healing, it adapts itself to the fibers of the muscle in the way of least resistance which is squarely across. The muscle may then be severed with scissors or the knife or the ligature may be allowed to finish the operation.

In accouchements when instrumental deliveries are made in haste or when pituitary extract has been injudiciously used and in occipitoposterior presentations extensive lacerations are common. Whether or not immediate repair should be made will not be discussed, we will let the obstetrician and the gynecologist fight it out. I would say, however, when delivering a woman with forceps remember you are trying to do in a very limited time that which nature requires hours to perform, so do not use brute force, but, by good judgment and care, try in every way to avoid a laceration which means suffering.

In the aged, in derangements of the brain cortex, myelitis, the ataxias and hysteria, incontinence is frequent and, excepting where central lesions are the cause, relief and often cures may be made. In dysentery, in the acute diseases causing mental depression, in fright, fear or joy, incontinence may occur but, as these are of short duration, nature will assert itself and a spontaneous cure take place.

Some years ago I had under my care a bookkeeper for a large manufacturing establishment, who, if he did not follow a prescribed route to his work, where he had access to toilets, was sure to have an accident. His condition was purely psychic. By suggestive means and placebos he was entirely cured.

I heartily concur in what Dr. Gant has said and would endorse his plea for good, clean, commonsense surgery and treatment of anorectal diseases. We may not be able to do what he does in ten minutes, but by care and conservative methods, we can produce good results.

OBSTRUCTION OF THE COMMON BILE DUCT *

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The common bile duct is formed by the union of the cystic and hepatic ducts. It is usually three inches long, and terminates in the posterior wall of the duodenum with which it communicates by means of an orifice in a papilla called the papilla of Vater. It is not uniformly three inches long because the union of the two ducts does not always occur at a fixed point. In some individuals it occurs low down when the two ducts are found beside each other and are held together with connective tissue. In such cases the duct is much shorter than three inches. In other individuals the union occurs in the fissure of the liver, making the duct much longer. The normal point of union is about three fourths of an inch from the intrahepatic portion of the hepatic duct.

In the porta the common duct is anterior and to the right, the hepatic artery anterior and to the left, and the portal vein posterior and between the two.

Frequently there is a peritoneal fold connecting the pelvis of the gallbladder with the gastrohepatic ligament which in inflammatory conditions might be mistaken for the cystic duct, because it lies in line with the cavity of the gallbladder. The outer surface of the cystic duct shows constrictions which correspond to the spiral folds of the mucous membrane within, constituting the so-called valves of Heister.

The ducts being usually three inches in length can therefore be advantageously considered in three portions, each portion representing an inch. The first portion has a lumen measuring about 8 mm. in diameter; the second, 5 mm.; the third, 3 mm.; which is narrower than the cystic duct. The orifice of the papilla of Vater has the smallest lumen of the entire referred to biliary system. The first portion or inch lies in the right border of the gastrohepatic ligament; the second portion passes behind the descending portion of the duodenum and is partly surrounded in many individuals by the head of the pancreas; and the third portion passes obliquely through the wall of the duodenum and terminates in the papilla of Vater. The duct of Wirsung joins the common duct, usually, as it enters the posterior wall of the duodenum, where a slight dilatation of its lumen exists, which is called the ampulla of Vater. The orifice in the papilla of Vater is guarded by a valve which is so efficient in its action, that, according to Dr. Coffey's experiment, the duodenum can become distended to the point of rupture before any gas or fluid can enter the duct. If the duct of Wirsung or Santorini enters the duodenum separately, its orifice is also guarded by a similar but more rudimentary valve.

The common bile duct is one of the first ducts developed in the human body, preceding the ureters and the bladder, thus impressing upon us its great functional value in embryonic development.

The liver appears at about the third week as a double organ which subsequently fuses to form a single organ or gland, and a single duct.

The gallbladder arises as a lateral protrusion of the hepatic duct. In the horse and deer, where no gallbladder is found, the common duct is much enlarged, and in some cases has become sacculated so as to resemble a gallbladder; and in the human where the gallbladder has been excised, I have found in two instances, at secondary operation for other causes, that the hepatic duct had become as large as a small intestine in the one case, and in the other had become sacculated so as to resemble a small gallbladder, indicating that there must be some back pressure.

The lower dorsal and the two upper lumbar nerves supply the common duct, which explains the pains referred to the back so frequently complained of.

The lymph channels of the common duct are few, yet three glands are frequently found on its wall. One is located at the beginning of the cystic duct, another at the union of the hepatic and cystic ducts, and the other usually can be felt somewhere along the duct by passing a finger into the foramen of Winslow.

The function of the common bile duct is to lead the bile from the liver, at the rate of about an ounce an hour, over into the duodenum. It is interesting to note that the gallbladder, which is an elastic, muscular and distensible sac, is so connected with the common duct that, when it contracts upon its contents, the fluid pressure is the same in the gallbladder, cystic and common ducts. In the normal state it never empties itself entirely as does the urinary bladder.

Opie, through his experiments, has induced us to believe that bile, mixed with mucus of the gallbladder and injected into the duct of Wirsung, was but a slight irritant to the pancreas, and that bile, without this mucus and thus injected, was a powerful irritant to this organ, exciting acute inflammation in the majority of instances, an argument in favor of saving the gallbladder whenever possible and feasible.

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* Read before the Section on Surgery of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 20, 1916.

The physiologic efficiency of the duct can be interfered with either by causes within the lumen of the duct, by causes in the wall of the duct, or by causes outside the wall of the duct. The obstruction thus caused may be complete or incomplete, yet in either instance pathologic changes ensue, first in the duct itself, manifested by dilatation with slight or severe inflammation in the duct wall above the site of obstruction, associated with stagnation of bile, enlargement of the liver, followed by infection, first local, then systemic, producing a cholangitis, cholecystitis and often a pericholecystitis, pronounced jaundice with Charcot's syndromes and destruction of the corpuscles of the blood and, if not relieved, with a fatal end.

The agents within the lumen of the duct causing obstruction are (1) stone (most frequent); (2) mucous plugs, the result of inflammation; (3) parasites (intestinal in origin), (*a*) *Ascaris lumbricoides,* (*b*) Distoma, (*c*) psorosperms, (*d*) *Pentastoma constrictum,* (*e*) *Paramecium coli,* and (4) polyp.

Agents within the wall of the duct causing obstruction are (1) inflammation of the wall itself; (2) strictures; (3) growths (*a*) benign papilloma, hydatid cysts, fibroma, (*b*) malignants, carcinoma, sarcoma (none recorded); (4) tuberculosis; and (5) actinomycosis. Agents causing obstruction from outside the duct are (1) cancer of the pancreas, gallbladder, duodenum, liver and stomach; (2) adhesions; (3) large stones in the cystic duct pressing on the common duct; (4) kinking of the duct due to a movable kidney; and (5) aneurysm, producing obstructive conditions in the common duct.

All stones of the biliary passages have for their antecedent some form of infection. This has been much discussed lately, particularly as to the course pursued by the bacteria producing infection of the common duct and bile sac. Some are of the opinion that infection occurs by ascending through the duct from the duodenum. Others are of the opinion that it travels by way of the lymphatic channels; others believe that the bacteria from the intestines pass by the portal vein through the liver to be distributed by the bile, and Rosenow in numerous instances has proved that vascular borne bacteria are carried to the capillary base of the mucous cells of the duct and gallbladder and thus excite infectious inflammation.

He has shown that bacteria of local diseases have as a selective an affinity for similar environment as have the bacteria of the general infectious diseases; that if the bacteria cultivated from the gallbladder wall, taken from man, be injected into the body of animals with a gallbladder, with an equal chance at all the body tissues, an attack of cholecystitis will be produced in 68 per cent. of the animals so treated.

Stones are seldom if ever formed in the duct itself, but nearly always have their origin in the gallbladder. They are seldom formed in the hepatic duct, and when a stone has passed through the cystic duct, others usually follow it, forming an accumulation of stones in the dilated duct behind the primary stone. The stones that form in the hepatic duct are usually very small, and if not all are removed at operation they usually take care of themselves by passing through the duct or drainage opening without causing trouble. Stones larger than 5 mm. in diameter are usually arrested in the first portion of the duct; and the lower down the stone is lodged, the smaller is its size.

Stones seldom cause complete obstruction, partial occlusion is the rule; yet in either case the duct above the obstruction becomes dilated and pathologic changes ensue in the wall itself. As the duct wall becomes dilated, the bile passes around the stone and escapes into the duodenum. The most frequent site of obstruction by stone is in the third portion. If complete occlusion exists, the duct behind the seat of obstruction is intensely dilated, and the jaundice is constant and intense, while the pain is not so severe but is constant, and the symptoms may then simulate those of cancer of the duct; but usually can be differentiated by the history and character of the pain or colic, emaciation and cachexia.

In incomplete obstruction the stone often assumes the ball-valve action described by Dr. Fenger, which is attended by pain with chills at irregular intervals, followed by high fever and sweats, and in a short time an intensified attack of jaundice ensues with emaciation. If this condition has existed sufficiently long the liver becomes enlarged and tender, and the gallbladder almost entirely obliterated in the late stages; in cystic duct obstruction, the gallbladder becomes distended, and the pain is acute and severe, associated with pyrexia, with or without jaundice. As a rule no jaundice develops. In common duct obstruction jaundice nearly always develops after an attack of pain. The stools in cystic duct obstruction are unaltered while those in common duct obstruction are putty colored.

If the stone is lodged in the ampulla of Vater or at the orifice of the papilla of Vater, bile may be retrojected into the pancreas, an occurrence which, according to Opie, is followed by acute hemorrhagic necrosis of the pancreas with all its sequelae; and the poisonous action of the bile and the forced inactivity of the hepatic cells in these cases will cause a rupture of the walls of the biliary capillaries and tend to destroy the liver substances. If the stone remains in the lower part of the duct and infection is superadded, some of the following complications may ensue: (1) Empyema of the gallbladder, (2) abscesses around the gallbladder and bile ducts, (3) suppurative cholangitis, (4) chronic catarrhal inflammation of the gallbladder and bile ducts, (5) phlegmonous cholecystitis.

Polyp of the lumen of the bile duct is rare and is usually single. The health of such patients becomes impaired very insidiously; and there is a progressive oncoming jaundice such as I never saw in any other condition. We have had one such case in our clinic in which the growth occluded the entire lumen of the duct. This occlusion was followed with persistent intestinal indigestion, a jaundice which deepened in color, with emaciation and progressive impairment of health. Urinary findings frequently showed the presence of sugar. Symptoms in general simulated those of malignancy. Operation revealed a distended duct above the seat of obstruction, and on palpation there was felt at the junction of the middle and lower third of the duct a hard mass which was removed with an instrument which controlled the duct and supported the posterior wall and pushed the growth forward, making the anterior wall tense. An incision was then made in the wall and, by tightening the instrument, the growth was forced into the wound and removed by excising it at the base of the pedicle. The anterior incision was then sutured with small silk sutures such as I use in suturing blood vessels, using the finest Lane's needle. This patient made a rapid recovery and is now enjoying perfect health.

Cancer of the biliary passages exists in about 5 per cent. of all carcinomata. Its occurrence in the gallbladder is five times as frequent as it is in the common duct. The most frequent site is at the papilla of Vater; next, at the beginning of the duct. These growths tend to constrict the duct and soon close its lumen. They usually originate in the inner coats of the duct. Wide infiltration of the duct wall is rare and there exists but a slight tendency toward metastasis. Early diagnosis is difficult, yet progressive emaciation with a dull persisting pain in the gallbladder region with progressive jaundice, which creeps onto the patient slowly and insidiously, should lead us to suspect cancer. The gallbladder becomes distended and in 45 per cent. of the cases it can be palpated. The attempt of the distended gallbladder to empty itself may excite colicky pains which simulate gallstone colic but are seldom as distinct and as pronounced. When cancer is complicated by gallstones, and it usually is, these symptoms become more complex.

Stricture of the common duct is rare and in the hepatic duct almost unheard of. Yet I find that Langenbach refers to seven cases found in his series of necropsies.

In the cystic duct, strictures are more common, and when they occur in the common duct they are usually due to trauma, the result of operation, or to the passage of gallstones, or as a sequela to syphilis, typhoid fever and phlegmonous inflammation of the duct wall.

All the conditions save perhaps mucous plugs and the occlusion due to the swelling of the duct wall, should be met as promptly as the diagnosis is made, with some surgical procedure.

Dr. J. B. Deaver many years ago advanced the truth that the earlier the operation the more favorable is the outcome of the means thus instituted. Such patients should be prepared and anesthetized, preferable with anoci-association, and an incision made from the ninth intercostal cartilage along the outer border of the rectus abdominis muscle to a point opposite the umbilicus, depending on the obesity of the patient. On opening the abdominal cavity, the wall of the incision is well protected with gauze and the appendix first examined and treated if necessary. The biliary passages are then carefully examined and walled off with hot, moist, gauze packs; and the gallbladder emptied or excised as indications demand. The common duct is carefully examined by passing the finger into the foramen of Winslow. If a stone or stones are discovered, or a tumor found either in the wall or lumen of the duct, or a stricture in its wall, it is then secured with this forceps which makes the anterior wall tense and protects the posterior wall by means of a closed facet. In case of stricture it facilitates the procedure and renders resection possible when otherwise impossible; if the stone is in the ampulla of Vater the procedure must be different and now becomes much more dangerous and difficult.

In such cases oftentimes the calculus can be pushed into the duodenum or milked back into the first portion of the duct by virtue of the anatomy of the duct, from which it can be easily extracted. But if this is impossible, then the duodenum should be mobilized and an effort made to milk the stone back or reach it by McBurney's transduodenal route. In order to remove the stone from the ampulla of Vater it is well to follow the technic described by Dr. Hassler, 1898, in the German Surgical Congress: The duodenum is mobilized and isolated by gauze packs and the light intestinal clamp placed on it above and below the area to be incised. The anterior wall of the duodenum is then seized with two forceps and an incision made between. The papilla of Vater is found and the calculus made prominent by pushing the stone forward. An incision is made in the mucous membrane of the duodenum and the stone extracted. Sometimes the stone can be forced into the duodenum by first dilating the orifice of the papilla of Vater. After extracting the stone the incision is closed with fine silk sutures such as are used in suturing arteries. The duodenum is anteriorly closed with Czerney-Lambert sutures.

In cancer of the duct the operation must be done early enough to excise the growth, which can be done by ligating the duct above and below provided the growth has not encroached on the union of the hepatic and cystic ducts. If this has occurred excision then is useless, yet a cholecystenterostomy may much prolong life.

Resection of the common duct is attended by a 50 per cent. mortality in the best hands and is most suitable in the strictural type of obstruction. If resection in cases of stricture becomes impossible and the development of a malignant growth is rapid, the duct can be ligated above and below and a cholecystenterostomy performed, which should be the procedure of choice.

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CHOLECYSTECTOMY THE OPERATION OF CHOICE *

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There are several factors that determine the procedure in dealing with a diseased gallbladder. The term diseased gallbladder is used with the conviction substantiated by the work of Rosenow[1] that the condition of gallstones is not a disease per se but always a symptom of a previously diseased gallbladder and that the gallbladder once diseased either remains a nidus of infection or, as a result of inflammation, loses its function.

This function is a disputed point. The late J. B. Murphy, after Pawlow's[2] description of the digestive process, gave us the ingenious theory that the gallbladder is a pressure chamber to equalize the pressure in the hepatic, common and cystic ducts, thereby preventing regurgitation of bile into the pancreatic duct. This is fairly generally accepted by physiologists and further exemplified by Howell[3] in that the secretion of bile is constant and excessive secretion is caused by digestive demands only when the acid chyme enters the duodenum, and therefore a storage reservoir is not needed. Others believe that the gallbladder is a storage reservoir for excessive digestive demands.

Even admitting the storage reservoir theory, both these functions are nullified in cholecystitis, either acute or chronic, as sooner or later the gallbladder can no longer use its power of expansion and contraction that is necessary for either function.

Charles Mayo[4] shows that the gastric symptoms of gallbladder disease are not due to gallstones but to infection, and that the formation of gas, so common with these patients, produces pressure on the common duct in its passage through the duodenum, thereby producing a vicious circle, that is, the more infection the less drainage. Therefore, given an organ whose function is necessarily impaired or destroyed when diseased and whose presence is a source of infection, it is certainly reasonable to remove it providing the risk is no greater to the patient than drainage.

The mortality in the work of the Mayos, Deaver, Oschner, Moynihan and other leaders in this line of work the past two years has been practically the same in cholecystectomy and cholecystostomy, and when we remember that the former operation is often necessary secondary to drainage, and that a primary removal is infinitely easier than a secondary one, the advantage in risk is in favor of the cholecystectomy.

Buchanan[5] quotes Finney who says, "The great objection to cholecystectomy will always be in the fact that, in cases of subsequent obstruction to the common duct, the other avenue to the passage of bile has been cut off." This is not a valid argument against removal, for, with stones in the common duct causing obstruction, the gallbladder will be contracted at first temporarily and then permanently as a result of inflammation and the cystic duct will be obstructed. This phenomenon is nicely explained by Mayo-Robson, discussing Cour-

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* Read before the Section on Surgery of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 20, 1916.

[1] Rosenow: Jour. A. M. A., April, 1916.

[2] Murphy's Clinics.

[3] Howell: A Text Book of Physiology.

[4] Cholecystectomy vs. Cholecystotomy, Transactions Southern Surg. and Gyn. Soc., 1915.

[5] Buchanan: Surg. Gyn. and Obst., October, 1915.

voisier's law. Hans Kehr and Eisendrath[6] claim that about 50 per cent. of common duct stones are overlooked at time of operation. Now, if cholesterin is precipitated[8] and therefore cholelithiasis is caused only in the gallbladder and stones in the common and hepatic duct are "wandering stones" the question resolves itself into the care and technic at the original operation.

As in many difficult operations, the simplification of the technic depends entirely on exposure of the pathology and particularly in gallbladder work a simple rectus incision will not do, as we must have sufficient retraction to do the work entirely under guidance of the eye, for safe and proper exploration of the ducts.

There are numerous incisions available for proper exposure, those commonly used being the Bevan incision, Mayo-Robson's and Kehr's Wellenschnitt. The principal point in any incision is to make it large enough and to keep as far from the costal margin as is consistent with practical work on the gallbladder.

Any incision that approaches the outer border of the rectus muscle will impair its nerve supply and be so close to the costal margin that eversion of the wound edge with the necessary rotation of the liver is difficult or impossible owing to the rigidity of the outer edge of the wound.

A straight incision beginning at the ensiform and extending to a point two inches to the right of the umbilicus has all the advantages of any other incision; has muscle on both sides and can be extended downward in the rectus as far as desired for exploration. There are no muscles cut and it is comparatively easy to close. It will be found parallel to the face of the rotated liver.

This incision is simply a Kehr-Bevan and Mayo-Robson incision straightened out. The author first saw this incision used by Dr. Judd of Rochester and has found it far superior to any other.

Now, the only obstacle to work on the gallbladder after proper exposure is the presence of adhesions. If the gallbladder is thickened and adherent to adjacent viscera it must at any rate be freed, and then it is as easy to remove it as it is to insert a drain with proper fixation sutures.

From the standpoint of end results there can be no question that removal of the gallbladder shows less morbidity than simple drainage.

An average taken from the follow-up records of different operators shows about 50 per cent. cured and 25 per cent. benefited by drainage alone, while removal shows 75 per cent. cured and an additional 15 per cent. benefited.[7] The percentage of cures will certainly increase with early primary cholecystectomy. In addition, if cultures can always be obtained from the gallbladder wall, as shown by Rosenow,[8] we must take into consideration a chronic focus of infection very similar to that found in pyorrhea and chronic tonsillitis.

The principal added dangers of cholecystectomy over cholecystostomy is injury to the hepatic and common ducts and the portal vein; and also inability to properly ligate the cystic artery and duct with resultant hemorrhage or leakage.

With the type of thickened and contracted gallbladder, where separate ligation of the duct and artery is impossible, a clamp with long handle can be placed on the stump as with a kidney pedicle, and be allowed to remain for thirty-six or forty-eight hours, when the cystic artery will be occluded and by this time the peritoneal cavity also will be so walled off around the forceps that a safe drainage tract is established. This is a particularly good method where after drainage may be necessary. The stormy twenty-four hours, after work on the biliary system, is generally caused by a spasm of the sphincter of the common duct, the valve of Oddi, with the result that there may be regurgitation of bile into the pancreatic duct causing symptoms akin to acute pancreatitis. By removal of the forceps, drainage is immediately instituted and these symptoms are under control with no fear of hemorrhage from the cystic artery after thirty-six hours.

In distinguishing the common duct from the portal vein a small hypodermic needle is invaluable after the method of Terrier.

As the technic of gallbladder surgery is being improved and simplified at all times, it seems that cholecystostomy will be used only in acute empyema and virulent infective cholecystitis or cholangitis when the condition of the patient will only justify an emergency operation and that very often under a local anesthetic.

With cholecystectomy on the one hand, the patient is in condition to be out of bed with a dry wound in about twelve to fourteen days, in comparison to a painful sloppy convalescence with gastric reflex disturbances due to the tube while it is in place and adhesions after its removal.

We are of the opinion that the gallbladder, if in such condition as to require any operation at all, should be removed except in a small percentage of cases where for mechanical reasons it is necessary to use it as a temporary drainage tube.

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[6] Moynihan: Gall Stones and Their Treatment.

[7] Deaver: Surgery of Upper Abdomen, pages 11 and 12, quoting Naunyn.

[8] Rosenow: Mayo's Clinic, 1915.

By following this rule of practice we will not have the unpleasant experience of having the internist report the patient unimproved and of having another surgeon remove the gallbladder.

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DISCUSSION

ON PAPERS OF DRS. SCHAEFFER AND MATHENY

Dr. John A. Lichty, Pittsburgh: Dr. Schaeffer has given a very vivid description of the gallbladder and ducts, together with the papilla of Vater, and of the relative importance of disease of these organs. Physiologists speak of the brain, of the heart and of the liver as of great physiological importance. In animal experimentation when the liver is taken out the animal dies more quickly than when the brain or heart is removed. The effect of diseases of the gallbladder and ducts on the general health must certainly be very important.

Dr. Matheny in his paper has brought out a very interesting point in gallbladder disease which was not thought of when I began to compile my data on gallbladder work. Several years ago I collected data for statistical purposes from all my gallbladder and duct cases of the past twenty years. In the early part of that time, when the gallbladder was removed there was very little thought of it and I made no effort to compare the results of cholecystectomy with those of cholecystostomy. As the result of this investigation I found 614 cases of gallbladder and duct disease in which 193 patients were operated on. Of these most were simple drainage cases and a few were cases in which total removal of the gallbladder was done. In two of the former a second operation had to be performed, so also in two of the latter. It was in both instances on account of poor results.

I recall in my earlier cases one very satisfactory cholecystectomy. I did not feel so particularly enthusiastic over this because the operation was so indicated. The question as to which operation must always be decided on the condition found. I would rather have a living patient with the gallbladder in than a dead patient with the gallbladder out. Much will depend on the skill and qualification of the surgeon. I leave the question almost entirely to him. The Mayos allow 20 per cent. of the cases in which operation is performed to go through without cholecystectomy. It must depend on the condition of the gallbladder, the condition of the patient and then I believe largely on the skill of the operator himself. I hesitate to enter into this discussion when there are so many more able men, surgeons, here to discuss the subject. I do not know of any kind of surgery that is more satisfactory than gallbladder and duct surgery except possibly appendectomy in acute appendicitis.

Dr. Ernest Laplace, Philadelphia: I approve of the paper on this question. The gallbladder occupies a position in the upper abdomen like that of the appendix. We know that when a foreign body is in a blind pocket as the appendix, the appendix must be removed. The gallbladder was supposed to be essential to proper digestion. It has been proved that it is not. Therefore why preserve the organ that is not of essential use? I remove all diseased gallbladders except when the time required for proper work might jeopardize the life of the patient. Not that I fear the after-results, but that the doing of this operation in the correct way at the time does not seem possible; then I drain. It is a good riddance once out. We are bound to get adhesions either one way or the other. When the gallbladder remains and is drained, we really stultify ourselves. We agree that an area of adhesions from the gallbladder to the abdominal wall may be set up; the very thing we want to avoid. We cut down on the gallbladder and find that it is surrounded by adhesions to the pylorus and the colon and intestines and leave the gallbladder there. For my part the mortality has not been any greater than the cholecystostomy.

Dr. John H. Jopson, Philadelphia: I am very much in accord with Dr. Matheny's views as to the indications for removal of the gallbladder. Until the last two or three years my preference was strongly in favor of drainage instead of cholecystectomy. I was influenced by the comparatively higher mortality which accompanied the latter operation until within the last few years. With the improvements in technic the mortality is now no greater in cholecystectomy than it is in cholecystostomy and the end-results are very much better, so that I am now taking out gallbladders such as I formerly drained, and only in an exceptional case leaving the gallbladder. In very acute inflammation and gangrene the drainage operation should be practiced, and in occasional cases of very mild infection the removal of the gallbladder is not always imperative.

A word of caution in regard to the technic of the operation. We have all noted recently the numerous reports of injury to the common duct during cholecystectomy, these cases usually being published under the head of "an operation for repair of the common duct," etc., oftentimes descriptive of new methods of repair. It is easy to injure the common duct when removal of the gallbladder is practiced from below upward, as is now the common custom, and I believe there are a few cases in which removal may be more safely begun from the fundus of the bladder working toward the cystic duct; this in cases where relations are difficult to define. When transverse division of the common duct occurs immediate suture is usually not difficult, but when a portion of the duct is accidentally removed, operations for plastic repair are necessary and are sometimes exceedingly difficult.

Dr. Harold L. Foss, Danville: A paper by Dr. Donald Guthrie, published recently in *The Journal of the American Medical Association*, is particularly illuminating. In it appear the answers of thirty or forty of our leading American surgeons to a questionnaire on the subject of cholecystectomy. A careful examination of the replies reveal that, at this time, cholecystectomy is favored rather than cholecystostomy. In the past three years the Mayos have been performing cholecystectomies in over 90 per cent. of their gallbladder cases. The operation is not one for the tyro to perform and, unless good exposure is secured and the surgeon is in possession of thorough anatomical knowledge of the upper right abdomen and has technical skill, serious damage to important structures may result. Deaver states that the recent vogue of cholecystectomy has resulted in several cases being referred to him for the repair of damaged common ducts.

I have in the past year had occasion to perform secondary cholecystectomies on many patients who had previously had their gallbladders drained. Complete relief of symptoms has resulted in nearly all these cases. We recently had at the Geisinger Memorial a patient on whom three operations had been performed, stones being removed each time and the gallbladder drained. We had her for the fourth operation, a cholecystectomy, and on opening the gallbladder over 500 tiny millet-seed stones were discovered. Surely there can be no denying the indications for cholecystectomy in cases of these chronic stone-forming gallbladders, nor is there much question regarding the efficacy of complete removal of the organ in cases of long-standing chronic gallbladder inflammation with or without stones.

DR. MATHENY, closing: The more cholecystectomies that are done primarily the easier they will be, as after cholecystostomy adhesions will naturally be found. One usually finds at a secondary operation on the gallbladder one of two things; either a contracted gallbladder with thickened walls or hydrops with sometimes great distention.

I beg to take issue with Dr. Lichty in regard to the percentage of gallbladders removed in our larger clinics. At the Mayo Clinic fully 90 per cent. are being removed, while Dr. John Deaver removes practically all of them.

THE FAILING HEART: RECOGNITION AND CARE OF CERTAIN TYPES *

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Who has not felt a certain apprehensiveness or anxiety with a failing, knocking motor, and a long drive and rough ascending road ahead. Shall the heart, the motor, the sovereign pump of life, cause less concern where signs of perturbed function and diminished power are revealed? The breakdown of an automobile engine is mainly the consequence of an insistent infatuation for speed and power; likewise, the hearts of men and women are breaking down under the intense, obsessive liking for high pressure and speed in living, working and pleasuring.

It is needless and supererogatory here and now to enumerate the federal vital statistics showing the actual increased and increasing prevalence and too obvious importance of heart disease, not only in relation to clinical medicine and cardiac hygiene, but in the broad and serious aspects bearing on social and industrial life and the prospects of posterity. Is there a solemn problem of accountability involved; of contributory negligence on the part of both lay and medical members of society? Where does the departure from the principles of heart husbandry originate? What internal and external factors determine the drift toward deterioration of heart power, vigor and endurance? In short, when and why do hearts fail under the usual average conditions of modern living, when the frequency and severity of incidence should seem to occur only under the most extraordinary conditions and activities? Assuredly, it is the timely and responsible task of clinical and preventive medicine to detect and differentiate the incipient signs of the failing heart before real heart failure ensues. Most emphatically the term "heart failure" would not occur nearly so often in the mortality category if the failing heart were intimately estimated, whether independently or as related to prior or associated constitutional causes.

Heart failure is the inability of the heart muscle to maintain the circulation, a deep disturbance of normal adjustment of the various factors concerned in the circulation (Mackenzie).

The failing heart, or cardiac weakness of Jürgensen, is "a functional incapacity of the heart which causes such a retardation of the circulation that the tissue respiration becomes insufficient."

And yet, as Hoover says: "Our present conception of functional diseases of the heart is not at all inconsistent with the ultimate death of the heart."

The relation of the failing heart to heart failure is analogous to incipient tuberculosis as related to its advanced stage, or consumption.

Heart failure represents the end result, or exhaustion: the failing heart indicates beginning loss of reserve force, or embarrassment. The former is inevitably and often suddenly fatal: the latter is almost invariably curable; surely remediable; and any drift toward chronicity and structural cardiopathy usually preventable.

In this discussion a failing heart is dealt with exclusively from the standpoint of functional disorder dominantly indicative of ventricular weakness, the causes of which may be intrinsic or extrinsic: obviously, inflammatory or structural lesions of the heart at whatever stage are ruled out of associative consideration.

The diagnosis of the failing heart is virtually the recognition of the condition distinctively by its symptoms and physical signs, along with a paramount searching out and judicious estimation of the underlying cause or causes. The more one observes and studies the latter the

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more one appreciates the broad magnitude and complexity of the clinical pathology or pathologic physiology of the heart. And yet some simplification and classification is permissible as correlations are being noted.

The initial, innate and practical importance of the quantitative vitality of the left ventricle cannot be overvalued. Its power is essential; its performance must be steadily rhythmical. But the stability and expectancy of life, *ceteris paribus,* are not alone dependent on mere ventricular power and vigor, inherent, temperamental or acquired, but (and here is the crux of the matter) on adequate increments and an adhesive permanence of reserve force; staying power; a vital, reinforced concrete sort of endurance; a margin of safety against the stress, strain and speed of existence; a surplus as well as cardiac capital to forestall circulatory bankruptcy.

As Tigerstedt intimates, the heart chambers do not die simultaneously, but the ventricles first and the left side first. Hence the left ventricle being the first to go is the first and constantly foremost for us to guard and sustain; hence, also, its incipient disturbances must command our utmost concentration of consideration and preventive and remedial care.

Perhaps the dominating, salient manifestation of a patient with a failing heart, a functional weakness and perturbation is the emotion of fear, anxiety, nervousness as to danger of sudden death from heart disease, introspective worry, and often garrulousness with relatives, friends and neighbors concerning heart symptoms urgently complained of. This prominent, persistent psychic element is rarely wanting, partly because the subjective symptoms of failing heart are more evident than the objective signs to the physician.

As pointed out by the elder Flint years ago, the difficulty of the removal of the fear of impending death, and the conviction of the presence of serious heart disease is, as a rule, a distinguishing mark of the functional nature of the disorder. "The effect which it produces on the mind reacts on the disorder and tends to perpetuate it."

Palpitation ranks easily first among the more strictly localized symptoms of failing heart. Its variations as to violence and precordial discomfort or pain; its transient quality; and its usual accompaniment of acceleration of beat are noteworthy and known to all. It is worth while emphasizing the significance of the latter feature for prognostic reasons, since the continuation of increased frequency of pulsation in heart weakness means a diminished output at the expense of diastole and the lowering of the heart's reserve power.

Next in importance is intermittency, which may also be designated as a sort of regular irregularity, not infrequently paroxysmal.

Tachycardia, which is really a regular acceleration of heart action with enfeeblement, depression of spirits, even transient, mental or emotional aberration, is often a common evidence of failing of the heart, especially if there is present at the same time weakening of all the heart sounds. Again, reduplication of the second sound of the heart sometimes occurs as a manifestation of a slight deviation in the ventricular synchronism and indicates certain disturbed conditions of arterial pressure from excitement, in which the recoil of closure of the two sets of semilunar valves fails to act in unison.

Where bradycardia exists, in order to prove that it is really representative of mere cardiac weakness it must first be shown that the sign is not due to an alternation of systoles, and also that it is not inherently normal to the individual. In some epidemics of influenza bradycardia has occurred with noticeable frequency during convalescence and lasted for some time subsequently, without any other sign than weakening of the heart sounds. Doubtless the cause was a profound neuromuscular poisoning by the "grip" or allied microbic toxins or both.

In my recent experience of about three years past the sign of ventricular flutter, both palpable and audible in the region of the apex beat and limited to the area bounded above by the third interspace and within by the left parasternal line, has opened a fresh and significant study of failing heart power peculiar, in my judgment, to an increasing proportion of the strenuousness of the world's workers and worriers, fighters and players of present day civilization. This fibrillatory character of ventricular function is probably one of the best danger signals of a failing heart, not so remote from a rather rapid decline to actual heart failure that postponement of radical measures can be allowed without the pain and pathos of an irreparable result.

The early detection of the failing heart is so valuable and instructive not so much because of the condition and requirements of the heart itself, but because it serves as an index finger pointing to functional derangements elsewhere, latent or neglected, themselves mostly the outcome of faulty hygiene in one or several combined phases of retrogressive habits of living. This is exemplified with increasing commonness in the type of intensely busy middle aged men of active worldly affairs; inclined to plethora and stoutness; immoderately heavy in eating, drinking, smoking and sitting. He eats too often, too much, and too fast of meats and richly seasoned meat concoctions in his frequent lunching at the club, dining out and suppering late. He whips up his heart with alcohol, coffee and tea, packages of cigarets and strong cigars; but he is often hard to convince that they do him harm unless you can show him a high blood pressure reading. He prefers riding in his motor car to walking, even indifferent to the enticing advances of a golf ball. He is daily, often hourly adding insult to injury by the pounding, nagging, wearing strains and shocks of high pressure prolonged business responsibilities; "heart breaking" financial reverses, worries with or without tense work, domestic and social sometimes as well as commercial. True, predisposition enters into the etiology; there may be the irritable heart of an idiosyncrasy or neurotic temperament.

Investigation often reveals a history of general physical exhaustion or "goneness," sometimes verging on temporary collapse into a psychasthenia or neurasthenia following on prolonged mental strain; moroseness or melancholy from grinding disappointments in affection or acquisition; repetitions of violent excitements of anger, jealousy, pugnacity, and the concomitants of various aspects of the gambling habit. Excessive venery and other perversions of the sexual life are by no means negligible factors in eliciting the causation of the surface-play and objective evidences of the failing heart.

To my mind (as a strong conviction, indeed), one of the most palpable causes of the early and thus controllable evidences of a heart that is failing functionally is that of intestinal autotoxemia from whatever microbic activity, although mainly colonic. Habitual constipation usually coexists.

Digestive disturbances with gastric and colonic distention and acidosis are also frequent and troublesome but regulable elements in upsetting cardiac firmness, force, smoothness and steadiness of cyclic action.

Often we are witnessing as we observe and delve closely and deeply, that short attacks of ventricular flutter ensue in those perfectly well, and without any physical evidences of diseased heart whatsoever, who have had in the course of say ten years, several attacks of streptococcic or staphylococcic infection from polluted dust on the tonsils as gateways of entrance; or pyorrhea of the gums or antrum; or ptomain poisoning.

Of course, many subtle chemicopathologic and earlier intoxicating diseases influence the time when environmental and even sociologic happenings may be the last straw to bend (not break) for a while, at least, the cardiac sustaining power and reserve. What with histories of diphtheria, scarlet fever, typhoid fever, pneumonia, la grippe, glandular tuberculosis, anemias, puerperal sepsis, appendiceal and gallbladder attacks, malaria, chorea, migraine, hysteria, etc., yet all manifestly long and well recovered from, nevertheless, the heart has, under the above influences operating silently and continuously changed its condition of equilibrium to a subjective and recognizable degree of disadvantage and distress.

The diagnosis of a failing heart with functional weakness cannot rest assured, of course, simply on the history, association of causation, psychic anxiety, paroxysmal nature of attacks regardless of physical exertion ordinarily, excepting sudden, sharp and violent efforts. Without the negative results of an exhaustive physical exploration of the heart as to its size, the heart sounds and absence of any murmurs except at times the cardiopulmonary of accelerated heart rate, mere functional deficiency cannot be regarded as the exclusive condition.

Herein is involved the opportunity and duty of a tremendous work in preventive medicine. As in the case of the prevention of pulmonary tuberculosis, the public must be educated to apply to their physicians for periodic examinations of the heart as an index or possible later danger signal of unhygienic modes of living; and perforce not to neglect seeking such examinations whenever symptoms arise.

Also, as physicians it is our duty to proclaim by all private and legitimate public channels such preventive principles; and then be prepared with thoroughness, skill and patience to investigate for the signs of failing heart. Then, with balanced judgment and tact we can advise and treat accordingly.

To prevent consumption we cure incipient tuberculosis; to prevent the catastrophe of sudden or inevitable heart failure we aim to control and cure the incipient errant, failing heart.

How ripe and attractive the field is for fine diagnosis and beneficent practice in the art of saving and prolonging lives to comfort, usefulness, achievement and general betterment!

SUMMARY

1. Importance and beneficence of recognizing the precardiopathic stage of heart affection by study of signs of functionally weak or failing hearts.

2. Three types or tendencies: (a) Neurocardiac: psychic, neurotic, partly toxic; in adolescence and early middle life. (b) Neuroarteriocardiac: psychic and autotoxic; in middle life. (c) Neuronephrocardiac: psychic, toxic, metabolic, alcoholic; in early senility.

These represent the organic termini of failing heart conditions which at their significant onset and gradual development are preventable.

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DISCUSSION

Dr. James D. Heard, Pittsburgh: We are often unable to arrive at an accurate conception as to the underlying pathological condition which may be responsible for heart failure as manifested in a given patient. Thus, we are distinctly fortunate if we are able merely to recognize the existence of a myocarditis. The clinical differentiation of the various histologic types (parenchymatous, purulent, acute interstitial, rheumatic, syphilitic, tubercular) is one which is frequently impossible. We are confronted by a like difficulty in our study of disturbances of the cardiac mechanism. Modern methods of investigation have enabled us to recognize, often with great ease and accuracy, the nature of an arrhythmia which may be the immediate cause of cardiac failure. On the other hand, the underlying pathological process may elude us even after the heart has been made the subject of careful histologic examination. Two examples from cases coming under my own observation will serve to illustrate this fact. The first case was one of auricular fibrillation concerning which a postmortem study by Dr. Alfred E. Cohn demonstrated a lesion of the sino-auricular node; but no conclusion could be drawn that a relation existed between the lesion described and the clinical irregularity studied (Cohn and Heard, "A Case of Auricular Fibrillation with a Postmortem Examination," *Archives of Internal Medicine,* June, 1913). In the second case, one of complete heart block, Dr. Oskar Klotz was unable to discover any organic lesion which would account for the functional dissociation of auricle and ventricles. The bundle was followed through the auricle and right ventricle but "there was no evidence of acute nor chronic inflammation along its path, nor could any degeneration of the muscle fibers be found." This case, together with graphic records demonstrating complete heart block will form the subject of a later communication.

Since, therefore, it may be impossible even after death, to state the exact localization and delimitation of a lesion of the heart, and since treatment based on a conception of anatomical lesion, even if such conception be a correct one, is notoriously unsatisfactory, it is evident that some other idea must be used as a working basis if we are to handle our patients in a scientific manner.

The subject of Dr. Anders' paper embodies the newer viewpoint from which the cardiopathies are now studied, the viewpoint of function. The questions which we put in considering the treatment of a given case are: Is the heart muscle competent? If not, how may the heart be best safeguarded in order that it may eventually be enabled to carry on its work properly?

In conditions of marked cardiac failure, evidences of decompensation are readily recognized by the most casual observer. On the other hand, in the very early cases such evidence may be not readily obtainable. Therefore, we desire to have at our disposal tests of heart function which may enable us to recognize a latent weakness. The advantage of early recognition is obvious, since the results of safeguarding a heart which is just beginning to show a lowered functional capacity are often of superlative value.

Many such tests have been devised, but unfortunately none have, as yet, proven entirely satisfactory. Observers have vainly striven to establish the absolute power of the heart. Yet, as Barker says, "The absolute power of the heart is less important than the response of the heart to different somatic and psychic needs, and this response is not only different for different persons, but varies extraordinarily in the same person from day to day, and from hour to hour."

However, we are not discouraged by the comparative failure of the attempts which have been made in the hope of lengthening the so-called cardiac vista. It is probable that a greater approach to accuracy will eventually be attained. The method recently devised by Barringer, for example, for estimating functional capacity through a study of the delayed rise in blood pressure, appears to be worthy of further examination. Information of distinct value can often be gained by the simple staircase test, by the Russian and by the Mendelsohn tests. The more complicated reactions to active or passive muscular exertion which are used as a basis for estimating function may be employed with advantage if the results obtained are not interpreted too strictly. On the other hand, the tests which are based on estimation of relative ability to excrete sodium chlorid and of the application of cardiac reflexes as well as the information gained through the use of the Roentgenoscope appear to be of little value. The relative importance of the various tests based on direct blood pressure readings (Tigerstedt, Goodman and Howell, cardiac overload factor of Stone) is, as yet, a subject of dispute.

Fortunately, the hope of early recognition of a diminished ability of the heart to respond to effort does not rest on functional tests alone, nor need the institution of protective measures await the recognition of damage already done. The observer may even avert impending damage to a heart muscle by bearing in mind the conditions which may lead to poisoning or infection of the myocardium, and by making the knowledge of value to his patient by removing the foci of infection and by protecting the patient from overstrain at critical periods. He may realize the danger to circulatory organs of certain vicious habits, of unfavorable occupations and of undue stress, and may institute timely prophylactic measures. He may realize that certain disturbances of rhythm and of rate are indicative of myocardial involvement, and may, in the presence of such warnings, take such precautions as may avert an impending permanent handicap.

If he has reason to believe that the reserve power of the heart has already suffered diminution, he will institute measures whereby the heart may be enabled to resume its function in a normal manner. These measures he will determine by taking into account the patient's altered sensations, and by regarding these in connection with what may be such minor objective signs as rapid quiet breathing, alteration in facial color, inability for restful sleep unless the shoulders be elevated, or a slight edema over the chest or sacrum. For such conditions, of course, the physician's main prescription will be limitation of effort; he will seek to meet others as they arise.

We need not enumerate the subjective nor objective signs of marked decompensation. These are too well known to occupy a place in this discussion. However, it may not be out of place to call attention to the great prognostic value of the early recognition of alternation of the pulse. This condition can usually not be diagnosed without the aid of instruments of precision. When recognized in a patient whose heart is beating at approximately a normal rate, the finding is to be regarded as a sign of the utmost gravity. It is probable that a majority of such patients will not live for more than a year after the arrhythmia is first demonstrable. The longest survival on record is that of a patient of Tabora's, who was alive six years after the condition was found. Therefore, it devolves on the clinician, physician, and surgeon alike, to search diligently for this disturbance of metabolism and, if the disturbance be present, to base the subsequent handling of the patient on the knowledge that one is dealing with a heart already struggling under a load which is almost greater than it can bear.

RECURRENT SARCOMATA AT THE LIMBUS TREATED BY "ELECTRICAL DESICCATION" *

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In whatever aspect we view them, be it their origin, their pathological significance or their treatment, tumors of the anterior segment of the globe are always of interest. Today I wish to tell of two cases of epibulbar sarcoma at the limbus in which there were recurrences of the tumors after surgical removal, and to advocate a method of treatment, which shall have, I hope, not only the merit of removing the active tumorous processes, but also the prevention of their recurrence.

A railway engine driver, aged 58, consulted me in May, 1915, because he had been urged to have his left eye excised by reason of the rapid growth of a tumor at the sclerocornea. The tumor had appeared as a tiny dark speck in July or August of the previous year; he had regarded the effects of a bruise from a flying piece of coal as the cause of it. It had been treated by a variety of methods, all of which only stimulated rather than checked its growth. The man was in vigorous health; he never had had piles nor growths elsewhere.

The tumor mass, of the size of a small bean, projected through the palpebral fissure. The base of the tumor was much smaller than the circumference of its body; it arose by a narrow stalk at the sclerocorneal junction in the lower temporal quadrant and extended well on to the cornea, to which it was more superficially attached than it was to the conjunctivosclera, yet it was so firmly adherent to the underlying tissues, that it could not easily be moved. The mass was nodular and more or less fungoid, except at the portion pressed on by the upper lid, the surface of which was quite smooth. It was not friable, neither did it bleed readily; indeed the tumor itself seemed to be bloodless, for it was pearly white in color, although many large and tortuous vessels from the conjunctiva converged at its base. The cornea otherwise was not affected; nor were there other suspicious spots about the limbus, and the conjunctiva was not at all discolored.

The man's sight had been not at all affected, but was at the full standard of acuity, and the funduses too were healthy except for such changes as constitute "the fire-worker's choroids."

On the next day I excised the tumor, by a dissection carried well out into the bulbar conjunctiva and over the cornea, although the base of the tumor had not penetrated the corneal substance. The conjunctival tissues were further loosened and the raw surface covered by uniting their edges by four sutures. The tumor did not bleed, although the hemorrhage from the large vessels was quite free. All the sutures came away at the end of the fifth day; the healing was so rapid that in three weeks' time the region appeared normal, except for the quite wide dilatation of the conjunctival vessels.

In July, however, the eye became red again and when the patient came to me, there was a granular and vascular mass occupying exactly the same site as that of the excised mass, but extending somewhat more widely than it had. This growth, too, was nodular and fungoid, and there was a greater degree of vascularity of the conjunctiva than was present previously. This mass was excised on August 16. It appeared to have gone somewhat more deeply into the corneal tissue than was the case with the first mass. The surface healed readily; but, after two weeks, again a small nodule appeared.

On September 24 the man came again, and this time there was an exuberant double-headed mass; this too, was duly excised, and four weeks later the region seemed to be entirely free. But in eight weeks, by November 27, the man came still another time with the statement that for two weeks his friends had remarked the reappearance of a tumor mass.

A study of the three separately excised masses showed them to be sarcomata; I will reserve the histological report for another communication.

I did not disturb this last mass until December 31; by that time it had become quite as large as that which was first excised. Still another nodule was present by Jan. 22, 1916, and of an even greater exuberance. In addition, and for the first time, the man complained that the eye was painful. By February 8 this last mass had attained to a size greater than any yet seen; besides, it protruded prominently through the palpebral fissure.

I determined not to attempt any further excisions, but from my observation of the results attained by the desiccation of neoplasmata of the lids and cheeks at the hands of Dr. William L. Clark, I believed such a method might be used on the globe as well. Accordingly, I took the patient to Dr. Clark, who under my direction seared the mass, slightly at first, scraping away the slough which followed, after which the surface was seared twice again, but the last slough

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was not disturbed. The Medusa-like vessels were then "punctured" with a tiny flame, at points well back into the fornix, which had the good effect of obstructing their lumens.

When dressed the next day, the reaction was found to be slight. There had been but little hemorrhage during the operation, but the next day the temporal half of the cornea appeared brilliantly blood-stained and the site of the tumor coagulated. The patient returned to his home in central New York, but visited me after six days. In the interval the area had healed entirely, and except for the blood-staining, the corneal surface was healthy. On March 24, the part where the tumors had been appeared to be only slightly coagulated and in place of the former blood-staining there was a murkiness which extended into the cornea. The large vessels had become contracted and the eye was as quiet and as natural looking as its fellow; it was not at all tender nor painful, but a loose eyelash in the sac had caused it to water a good deal.

Dr. Schwenk most generously wishes me to report from his service at the Wills Hospital the case of a sarcoma at the limbus which recurred after excision, which new growth I recommended should be subjected to desiccation.

A woman, aged 37, came to the hospital in October, 1914, because of a comparatively large mass on her right eye. She stated that from her earliest infancy, on the white of the eye a short distance from the clear part, there had been a dark spot which had grown gradually until shortly after the first of her six children was born, when it perceptibly increased in size, and at each successive pregnancy it had become larger than it had been in the intervals. When she was examined by us there was a kidney shaped mass about 6.5 mm. by 2.5 mm. in the chief diameters lying well over the temporal side of the cornea, without protruding through the palpebral fissure. It arose beyond the limbus and seemed to be adherent to the cornea; the remaining portion of the cornea was clear, and the iris healthy. By reason of its grayish brown color, it resembled a huge uveal prolapsus. Quite large blood vessels converged toward it from the scleral conjunctiva. There were no disturbances noticeable within the fundus. Vision: Right equaled 6/12; left, 6/7.5.

On closer inspection the mass was found to be not at all adherent to the cornea, but being attached by a short pedicle it could be lifted up; the pressure of the lid had flattened it against the cornea. It was excised on Nov. 14, 1914, and the recovery was prompt. The patient continued under observation for several weeks, but as there seemed to be no further need for attendance she disappeared. An examination of the mass showed it to be a pigmented sarcoma.

On Feb. 17, 1916, at the time the patient of the case already cited was recovering from the desiccation of his tumor, she returned because of a reappearance of the growth. She was not certain when the first signs of the recurrence had appeared, but in the previous three months it had grown rapidly, although she was not again pregnant. The mass, which was quite vascular, occupied the same site as the original mass; it seemed to be exactly like the first tumor, of a grayish brown color, and covered with conjunctiva. On February 18 she was referred to Dr. Clark, who according to directions, but without my presence, "desiccated" the mass. The result has been ideal, although for a few days the cornea in the region of the tumor showed coagulation, but not any blood-staining. When seen within the past four weeks the surface formerly occupied by the tumor was smooth and perfectly healthy.

By "desiccation" is meant the dehydration of tissues by means of heat applied in the form of an electric flame, produced by a high-frequency current, whereby the vitality of tissue cells is destroyed. The heat is produced by a monopolar electric current of high tension, generated best by a static machine, revolving at great speed, and then transformed by suitable appliances. The heat flame, which must not be so intense as to char the tissues, flows from the point of a fine steel needle. The current from such an instrument can be regulated precisely, and the visibility of the flame affords one the opportunity to apply it exactly when and where the operator desires.

This is not the so-called "fulguration" which consists in the indirect destruction of tissue by the application of a current generated by an induction coil or transformer, through the action of which the nutrition of a part is so altered as to prevent the proliferation of cells.

The technic employed by Dr. Clark consists very much in the following: Local anesthetization by cocain with adrenalin, either by instillation or by infiltration. A fine needle is fixed in a suitable hand-piece properly insulated. The current is made and broken by an assistant on signal from the operator, whose attention should not be distracted from the field of operation. The thermic intensity of the flame is tested by approximating it to a bit of metal, such as the point of the forceps. No arbitrary rules can be given for the application of the flame, because different cases require different strengths. One's technic develops with one's practice. The needle is not usually thrust into the tissues, but is brushed over the surface of the mass to be removed. The depth of the desiccation depends on the time of the contact and the driving power of the current which, of course, can be adequately regulated. It may not be required to extensively and visibly destroy all of the area that the heat penetrates, but only sufficiently to cause a retrogression and disappearance of the tissue cells. In the case of growths in the anterior segment of the globe, the cornea should be protected by means of a metal spatula to prevent the coagulation if not the destruction of that membrane.[1]

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[1] Clark, W. L.: Desiccation Surgery, Medical Council, 1915, in which are to be found numerous bibliographic references.

After the tumor mass has been converted into a necrotic heap, it is to be curetted away, or it may be excised. It might be well in the case of a conjunctival growth to allow the mass to macerate and slough; this proved a rapid and bloodless process in each of the cases here reported. Infection cannot readily occur on such a seared surface because the blood vessels and lymph channels have become sealed. Dr. Clark has not seen infection follow in any case under his observation. The healed surface presents neither scar, distortion nor other cicatrizing process.

It is hardly proper to presume to dictate that this method of treatment should be pursued in all cases of neoplastic processes of the ocular tissues just because of the immediate results of the application of the method to the two cases here presented, yet, from the results which I have observed in a variety of cases so treated by Dr. Clark, I would advocate the use of it, rather than the customary surgical procedures, because it has seemed to have checked recurrences and allayed rather than excited cell formation, the contrary results having been so frequently the case after the excision of new growths and notably manifested in my first patient. The blood vessels and lymph channels become sealed by the heat. And as no cicatrix or distortion follows, because only unhealthy tissues are to be subjected to the heat, it need not matter even though desiccation should have to be repeated by reason of the recurrence of the neoplasm.

Desiccation possesses distinct advantages over radium and other emanative rays, in so far that the flame can be seen and determined at the time of the application; its action is constant; and it can be so confined to a definite area that the surrounding tissues need not be harmed, nor should the sight be damaged by its use.

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GOITER, ITS CLASSIFICATION AND DIAGNOSIS*

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Nothing in medicine offers a wider or more intensely interesting field of study than does the subject of goiter. In the past few years so elaborate and fruitful have been investigations carried out on diseases of the thyroid that our knowledge along these lines for rapidity of development and scientific completeness has hardly been equaled in any other condition. One indisputable fact established by recent studies stands out most prominently and it is that goiter, with the possible exception of the colloid thyroid of adolescence, is not a disease to be treated medically, but is distinctly a surgical condition.

In the early months of intra-uterine life the thyroid, having developed from a bud originating between the three divisions of the embryonic tongue, descends in the neck to ultimately take up its permanent position astride the anterior aspect of the trachea. In the adult the site of its origin is marked at the base of the tongue by the foramen cecum while the path of its descent, the result of an infolding of a portion of pharyngeal mucosa, produces the thyroglossal duct which normally undergoes early obliteration. Composed of a right and left lobe joined across the trachea immediately below the cricoid cartilage by an isthmus, the thyroid persists throughout life performing its complex and highly essential function as one of the body's "wonder glands." What that function is is problematic, though the most acceptable, in the light of present knowledge, is that in some way it neutralizes certain toxic products of cell metabolism. That it is absolutely essential to normal life is certain, its absence resulting in cretinism while various pathological changes within it produce a horde of definite symptoms and frequently death.

Certain physiological facts regarding the thyroid are well known but its exact function remains an unsettled question. Absence of the gland retards normal development and prevents sex maturity. Its experimental removal in dogs produces mental and physical alterations analogous to that condition in the human known as myxedema. In the higher invertebrates, the limulus, sea scorpion, king crab, etc., the gland possesses a duct emptying into the alimentary canal. In other lower forms the thyroid is closely associated with the sex apparatus and some such correlation exists in the human as manifested by the enlargement of the gland at puberty, during menstruation, during pregnancy and at the menopause.

Any enlargement of the thyroid is usually termed goiter, a condition more or less evenly distributed throughout the country, though in certain localities there is a special prevalence. That certain districts have an unusual percentage of goiterous patients is a matter for which an adequate explanation has long been sought. The etiological factor of the condition long believed to be in some water-borne agent has never been discovered and the whole subject of the cause is still, in spite of elaborate and extensive research, in a nebulous state. The Alps afford the best examples of endemic goiter and from that region about 2,000 men each year are prevented from entering the Swiss army because of enlarged thyroids. Hale in charting the goiter belts of Northwestern United States shows that on one side of the Columbia River goiter is almost unknown among the inhabitants, while on the other side he quotes the goiter incidence to be as high as 17 to 22 per cent. Hale's examinations seem to have been carefully made on some 2,700 boys and 1,700 girls. He found 19½ per cent. of goiter in males and 33 per cent. in females. The theory advanced that Tacoma, for instance, will be freed of the possibility of goiter infection by using Green River water and treating it with chlorin is entertaining.

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* Read before the Montour County Medical Society at Danville, May 19, 1916.

There are several goiter belts in Pennsylvania. In the Cunningham and central Susquehanna valleys and in sections of the country running north from Catawissa into southern New York an undue incidence of goiter seems to appear. This is also true along the western foot hills of the Allegheny Mountains and running down through certain valleys in Indiana, Westmoreland and Cambria counties.

Originally goiter was divided into two chief forms, "simple" and "exophthalmic." "Toxic goiter," "exophthalmic goiter," "pulsating goiter," etc., were all terms applied to that form of thyroid enlargement associated with prominent eyes, nervousness, loss of weight, tachycardia, etc., the syndrome now known more scientifically as "hyperthyroidism." All other goiters were tossed into one class and labeled "simple." For many years it has been known that in this latter group were certain goiters grossly misnamed in that, though exophthalmos was not associated, yet in the picture there were marked evidences of an internal intoxication. It remained for Plummer to clear up the question and after a prodigious amount of work on thousands of specimens with the closest correlation of the clinical with the pathological findings, to give us the classification now accepted by most surgeons. In arranging the different forms of goiter according to that master investigator one finds the crux of the matter resting on the pathological finding of parenchymatous hyperplasia and about this finding the entire classification revolves. Goiter is thus divided into two main groups, first, those goiters presenting under the microscope hyperplasia or hypertrophy of the secreting elements of the acini and, second, those goiters failing to present such changes.

These two main groups are each subdivided into atoxic and toxic forms, resulting according to this most modern classification in the formation of four groups as follows: Nonhyperplastic, (I) atoxic, (II), toxic; hyperplastic, (III) atoxic, (IV) toxic.

Practically all goiters may be placed in one of three groups, Group III (the atoxic hyperplastic) being so rare as to be readily disregarded. From this Plummer draws two fundamental conclusions, first, that we have two distinct but very similar types of thyroid intoxication, one associated with nonhyperplastic, the other associated with hyperplastic goiter, and, second, that all cases having thyrotoxic symptoms with nonhyperplastic thyroids should be classified with the cases of toxic nonexophthalmic goiter.

Group I., Nonhyperplastic Atoxic.—Typical of this group is the original "simple goiter," the soft, smooth, symmetrical, evenly distributed thyroid enlargement of small or moderate size occurring in the period of adolescence and so frequently seen in young girls. Pathologically, the enlargement is the result of an overproduction or retention of watery colloid and thus the condition is often referred to as "diffuse colloid goiter." No symptoms other than local result from this form and even local symptoms are rare. An occasional adenoma or cyst occurring in a colloid goiter, particularly if large or if wedged between the trachea and esophagus, may produce very distressing respiratory embarrassment and, if the recurrent laryngeal nerve be pressed on, various voice changes may result. For the same reason cough may develop with considerable associated hoarseness. However, the majority of diffuse colloid thyroids are free of adenomata and are symptomless. One studying the necks of a group of school girls on the street of any American city cannot fail to find examples of this type. They rarely require treatment and almost never surgery. The recent vogue of unnecessary operations on this type of goiter at the hands of inexperienced operators is becoming most unfortunate.

Group II.—The other two forms of goiter to be considered are both toxic and are provocative of that constitutional state roughly referred to as thyrotoxicosis. The nonhyperplastic toxic form of Group II, a type long classed with the "simple" goiters, is a form less common than the exophthalmic. It is a toxic goiter separate and distinct from the latter and though often confounded with it presents a complex of its own, characteristic and clear. Its mortality is high, easily 2 per cent. above that of the exophthalmic form, and is a condition of special interest to us because of its great prevalence in certain sections of our own state. A goiter of this type may exist for years, producing no recognizable symptoms and may then gradually become associated with marked degenerative changes in other organs, chiefly those of the cardiovascular system. A general constitutional toxemia with special predilection for the myocardium exists while the local symptoms in the neck, if any have previously existed, rapidly become secondary in importance to those resulting from rapidly developing cardiovascular degeneration. Goiters of this group are composed of an encapsulated adenoma or of multiple adenomata which usually have undergone various retrograde pathological changes. It is to the absorption of the products of these degenerations into the blood stream with their apparent selective action for the myocardium that the cause of the symptoms associated with the goiters of Group II is accredited. The average age for the appearance of this type of goiter is 22, while the average age for the appearance of symptoms is 36. Contrast with these ages the corresponding ones for exophthalmic goiter, which are 32 and 32.9. One may from this be justified in believing with Plummer that the two groups are separate and distinct and furthermore that one is not a sequence of the other.

In the majority of cases of nonhyperplastic toxic goiter the progress of the symptoms is gradual and certain. It differs from the exophthalmic in that it rarely presents the rise and fall, the acute exacerbation with periods of remission, common to the latter, but, with its early symptoms approaching most insidiously, the progress is, however, certain and uninterrupted. The general symptoms progress in severity until a condition of advanced myocarditis results usually with associated nephritis, hypertension, arteriosclerosis and frequently terminating in death. In advanced cases the diagnosis is easy but often until late the connection between the constitutional state and the thyroid enlargement is overlooked and the patient is treated as a cardiovascular case in complete ignorance of the actual cause of the trouble. Myocardial changes predominate while nervousness and tremor are less obvious than in the goiters of Group IV. Exophthalmos is never present. The cardiovascular complex of this condition has been likened by Plummer to that resulting from alcohol, luetic, septic and other well-known intoxications.

Group IV.—We pass on to the consideration of the most important form of all goiters, the hyperplastic toxic or exophthalmic. Pathologically cellular hyperplasia is essential to the diagnosis of this form and can be demonstrated in all glands removed from patients presenting the syndrome of hyperthyroidism. Exophthalmos *per se* is by no means necessary to the diagnosis, it frequently being slight and often entirely absent. In some patients with most marked intoxication, eye changes may be completely wanting while in others, with but slight constitutional symptoms, exophthalmos may be extreme. Of 100 consecutive cases having, microscopically, hyperplastic thyroids and but mild general symptoms, 50 per cent. will have exophthalmos. Of 100 consecutive patients with nonhyperplastic glands having the most extreme intoxication not one will have exophthalmos. Roughly, the longer the history the greater the exophthalmos. The disease is much commoner in females than in males, the proportion being 85 to 15. The average age for the appearance of the goiter is 32, while the average age for the appearance of the first symptoms of intoxication is 32.9. Here at once is noted a characteristic markedly different from anything to be found in the complex of the toxic adenomatous goiter. In the latter, constitutional symptoms do not become apparent until, in the average case, the goiter has been present for fourteen years, while in the exophthalmic form, the one now under consideration, symptoms appear in but nine months after the onset of the goiter.

The order of appearance of symptoms in a typical case of exophthalmic goiter or, to use the more scientific name, hyperplastic toxic goiter, is as follows:

1. Cerebral stimulation, "nervousness."
2. Vasomotor disturbances of the skin, "sweating."
3. Tremor.
4. Mental irritability.
5. Tachycardia (an early and constant sign).
6. Loss of weight and strength (a cardinal symptom).
7. Cardiac insufficiency (hypertrophy and dilatation, incompetent valves, irregularities of pulse, thrills and bruit over thyroid vessels, edemas).
8. Exophthalmos (often lacking).
9. Diarrhea.
10. Vomiting.
11. Mental depression.
12. Jaundice.
13. Death.

The increase in metabolism is the most striking effect of thyroid hyperactivity and is equaled in no other disease. In cretinism and myxedema the metabolism may be 25 to 50 per cent. below the normal level. In exophthalmic goiter it may show an increase of 100 or even 120 per cent. DuBois, working with the Sage calorimeter, has advanced the theory that many of the symptoms of hyperthyroidism are secondary to the abnormal heat production. The flushed, warm skin and the sweating are physiological methods of dissipating heat. The increased appetite with the marked loss in weight in spite of great food consumption is the result of increased calorific requirement. The dyspnea and tachycardia are certainly due, in part at least, to the greater demand for oxygen.

The gland itself is often but slightly enlarged in exophthalmic goiter and by one untrained in thyroid diagnosis may be frequently overlooked. The goiter of this form rarely exhibits the marked development so frequently presented in "simple" goiter and rarely produces local pressure symptoms. The disease is one associated with hyperplasia of the thyroid parenchyma and presenting a symptom complex rerusting from the action of some powerful toxin whose predilection is for the nervous, cardiovascular and digestive systems. What prompts the gland to the production of this toxin and what the nature of the poison may be, are problems yet to be elucidated.

Kendall has isolated from the thyroid a crystalline substance containing 60 per cent. of iodin and possessing the physiologic activity attributed to the gland. The possible formula for the substance he has suggested to be di-iodo-dihydroxy-indol.

To one with the slightest knowledge of the subject the diagnosis of the moderately advanced case of exophthalmic goiter is simplicity itself. The story is still told of the woman with this condition who, after going the rounds of many offices, had her case accurately diagnosed as she alighted from the train at Rochester by the cab driver who was to take her to the hotel.

The wide staring eyes, the tremor, the hot, perspiring skin, the galloping pulse and the perfectly characteristic but altogether indescribable nervousness of these patients present a picture pathognomic. It is in the early or mild cases, the patient with small thyroid and with absent eye symptoms, that the difficulty arises. Again, when the goiter under examination exhibits multiple adenomata and the constitutional state associated with it as the result of profound intoxication is such as to closely imitate that of hyperthyroidism, differential diagnosis may be a matter of considerable difficulty.

The marked incidence of grave cardiovascular complications in nearly all forms of untreated goiter occurring in adults, with the high mortality in all the toxic forms, renders the subject of goiter diagnosis one of first importance especially with the physician of central Pennsylvania where goiter is so prevalent. As with nearly all surgical conditions the first responsibility usually rests with the general practitioner and his failure to render an early diagnosis in the toxic forms of goiter and his neglect to urge prompt surgical intervention will soon cause as severe an indictment to be brought against him as today would result from his failure to recognize so obvious a lesion as an acute appendicitis, a pelvic tumor or a breast carcinoma.

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SELECTIONS

THE RELATION OF THE HOSPITAL TO THE PROFESSION AND THE PUBLIC *

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CHESTER

The hospital proposition is really a new one. It is such a new proposition that it was not until the year 1910 that the United States Government considered it worth while to collect and tabulate information in reference to the hospitals in its regular decennial census.

Complete information is not even now obtainable from this source; but an analysis of this record shows the following in reference to the hospitals in this state:

Previous to the year 1875 there were but thirty-one hospitals in the state of Pennsylvania. Between the years 1875 and 1900, ninety-two new hospitals were established in this state. In the first decade of the present century sixty-one more new ones were added. At the time of writing this the total number listed was 220; but as I have not today received the "Last Edition" I cannot tell the final score.

I would like to discuss this problem precisely as the title indicates. I would like to underscore and potentially emphasize the word *"relation."*

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RECOGNITION OF THE RELATIONS THAT SHOULD EXIST

Has our profession or has the public either recognized, or attempted to enforce the proper relationship that should exist between the hospitals and themselves? Have the lay and professional management of most of our hospitals attempted in any very serious and comprehensive fashion to consider how the relation of the hospital might at the same time be more expanded and more efficient? I fear not in any adequate degree.

In the minds of many, a hospital is yet classified merely as a place to take a sick person who cannot be attended anywhere else. The duty of the lay management being to raise the money and the professional staff to give the treatment.

The original concept and relationship of a hospital was but in a slight degree removed from that of a hospice. It was a mere place of shelter and residence for those otherwise unprovided for. The earliest hospitals made little pretense of affording specially skilled professional treatment; such as was given was not as good as that attainable in a good private home. Sad to relate, there yet exists some institutions that are called "hospitals," to which the same fact might truthfully apply.

The modern hospital represents furnishing and equipment not attainable in any private home, except those of the very rich, who may at great expense temporarily convert part of their home into practically a hospital.

RELATION OF THE STAFF TO THE HOSPITAL

But vastly more important than the mere physical equipment, it should be assumed that a modern hospital has the service of a staff of specially trained men; capable of rendering specially skilled service in the departments to which they are assigned.

It is a deplorable fact that in the consideration of this important if not vital hospital relationship, many boards of lay managers consider that they can create a specialist by electing him to the position of one. By parity of reasoning they consider when that relationship is officially established the man becomes a real specialist, and generally the man so elected regards himself.

There is a most dangerous tendency in many hospitals to elect some men having special influence or "pull" to the staff for the special purpose of aiding the men so elected, rather than considering their special equipment for the office to which they are elected. This would be a less dangerous experiment if the early service as a member of the staff was under the tutelage of experienced men; but when, for instance, a man of no special surgical skill, experience or judgment is suddenly foisted by election of a lay board to the independent care of surgical wards, with no restraint as to what he shall or shall not operate, then we have established a very perverted and pernicious relationship.

THE RELATIONSHIP OF STAFF AND MANAGEMENT

The relation of the management and staff is such a delicate one, that I would perhaps show the part of wisdom by avoiding its discussion.

This much I am convinced of, the less the members of the staff have to do with anything except those things closely related to their professional duty, the better for the staff and the institution.

The more closely the management confines its activities and domination to the strictly business affairs of the hospital, the better for all concerned.

THE RELATION OF HOSPITAL AND PATIENT

A patient has the right to assume when he enters the ward of a hospital that he will be placed under the professional care of some one having special proficiency in the condition for which he sought hospital care. The patient has the further right to assume that all modern, scientific methods will be employed to discover as completely as possible all that relates to the condition for which he was admitted. Unless this is done the relation of the hospital to the patient is an unfair one.

The relation of the patient to the hospital is also manifestly unfair on his part, when he obtains admission as a free or part pay patient, when able to make full payment.

While, of course, the hospital is disposed to give to the patient the benefit of the doubt and accept his statement of inability to pay on its face value; yet if a hospital admitted all such patients on a tentative plan, the final financial adjustment being dependent on obtaining the complete facts, much money would revert to the hospital treasury now lost. We hear much of the dispensary abuse, but the hospital abuse is a close second.

It is also a manifest injustice to permit a patient to be classified as a "pay patient" by the payment of $1 per diem when the cost of his actual maintenance may be double that amount. The attending physician or surgeon should not have the right to ask or collect his professional fees from the patient in the hospital until that patient has paid the actual cost of his keep.

THE RELATION OF THE HOSPITAL AS A CENTER OF SCIENTIFIC RESEARCH WORK

The hospital should be more universally related as a center of scientific research work. This implies an earnest, active staff, dominated by the scientific spirit, the possession of adequate physical equipment, some specially trained persons to do the special scientific work, the uniform employment of scientific methods, and the collection and correlation of clinical and scientific data in an accurate fashion and of ready access.

I hear some say, "Oh, yes, that's all very fine, but our hospital has not the money." As the result of a personal inspection of a very large number of the hospitals of this state, I have formed the very pronounced opinion that when the scientific spirit really dominates the staff, the other elements are soon secured.

Some of the hospitals inspected were entirely lacking in the most ordinary scientific equipment because the members of the staff had made no effort to secure them. Other very deficiently equipped hospitals were deficiently equipped because the management had found that the staff did not utilize even that available.

Some of the members of the staff may be the most capable, efficient and scientific men; but if the dominating and controlling membership of that staff is composed of men who are not in active, practical sympathy and accord with scientific methods, the proper relation and results will not be attained.

I hear some old fellow, who graduated back in my time or before, say, "The homeopathic prescribing is based more on the clinical provings of drugs in the healthy humans than on laboratory experimentation.

We do not need the laboratory equipment of the Old School." Mind you, I said that this remark must have been made by some "old fellow," the recent graduate never entertained such foolish notions.

I want to point out here a much neglected field of work as applied to the hospitals of our own school. I refer to the laboratory confirmation of our special form of therapy.

However well proven from the viewpoint of clinical observation may be the efficiency of homeopathic therapy, confirming and conclusive demonstration of that fact should be made by laboratory methods to a much greater degree than now obtains.

The amount of valuable clinical and scientific data that is permanently lost through the failure of most hospitals to follow strictly scientific methods is beyond computation.

Because of the modest or no charges made by the pathologist directly to the patient, the patient does not recognize the extreme importance of obtaining a laboratory opinion. Because so many of our physicians are lax in insisting on laboratory findings, patients may feel that it is almost an ultra refinement if not an imposition to place this additional expense on them. To secure the proper relationship in this department, the members of the staff who are alive to the importance of uniform laboratory investigation must make a greater pressure on those who neglect it. The uniform employment of laboratory methods, and the uniform charge to patients who can afford to pay, that charge arranged for and paid in the office, will largely help to solve the financial part of the problem.

If clinical and scientific data were filed according to an approved system, if universal nomenclature was employed and the records properly cross-indexed, it would make each hospital a separate fountain-head of information and the sum total from the hospitals of this state would be incalculable.

The holding of necropsies whenever attainable, the conducting of those necropsies in a more complete and scientific fashion, with all of the physicians of the community privileged to witness them would establish a valuable scientific relation.

THE HOSPITAL IN RELATION TO ALL THE PHYSICIANS OF THE COMMUNITY

The local hospital should be related as a teaching center to all of the physicians of the community in which it is located. Have our local hospitals developed what should be the normal relationship toward the physicians of the community who are not members of the staff? I think not. Would there not be created an all-around greater efficiency if all of the physicians of the community had the opportunity of witnessing those special procedures and methods that can only be best employed in institutional treatment?

While the specially trained members of the staff might be considered as the only proper persons to make the demonstration, yet a vastly wider service would be rendered if all the local physicians were privileged to witness them.

The hospital should not be regarded as a close corporation. Its clinical facilities and physical equipments should be employed to the educational advantage of all physicians near it.

This "show down" will accomplish two valuable purposes. Not only will it be informative to those not having official position in the hospital, but it will prove highly stimulating and helpful to those on the staff if they are conscious that their work is the subject of observation and criticism.

It will help make the good men better, and may help in getting the inefficient one out.

The appointment to a position on the staff of a hospital is a trust, not a sinecure.

THE RELATION OF THE HOSPITAL AS A COMMUNITY ASSET

The relation of the hospital as a community asset, in reference to its availability in teaching public hygiene and preventive medicine is not yet established in an intimate and effective fashion that modern needs demand.

Hospitals should articulate with the local boards of health. In those communities not having municipal laboratories, a regular and systematic laboratory examination of the milk and water supply should be made in the local hospitals.

Think of the sickness and even lives that would be saved by an early and exact information of the bacterial content of water and milk. Think how nutrition might be improved if the exact amount of butter fat and other ingredients of milk could be promptly and precisely determined.

Local hospitals should be both equipped and available for the scientific investigation of infectious diseases. A more liberal proportion of the money appropriated by this state to the hospitals should be employed in work of this character. The hospital should make its prophylactic as well as its curative contribution to the community in which it is located.

When our hospitals have more amply demonstrated the value of their contribution in this respect, when they become recognized as being a real bulwark against the invasion of disease, rather than alone regarded as a place of refuge after the invasion of disease has occurred, then a new and better relation will have been established.

THE HOSPITAL IN RELATION TO THE INTERN

A new and most responsible relationship is now sustained by every member of the staff of every hospital receiving an intern who desires to subsequently practice medicine in this state.

Each man on the staffs of these hospitals is an official member of the medical faculty of this state. It means, or should mean, each staff member has the direct personal responsibility, as one of the postgraduate teachers recognized by this state, of imparting the needful instruction to the intern assigned for postgraduate work to the hospital with which he is associated.

It means that an intern can no longer be treated as a high grade orderly. It means that hospitals must not consider primarily how much they can get out of the service of the intern; but how much they can give to the intern in service and instruction.

I am publicly expressing the attitude of the Bureau of Medical Education and Licensure of this state in saying that those hospitals that do not fulfill properly their duties in the postgraduate year of medical training, will not be regarded as eligible to receive an intern to train.

At the risk of being tiresome and tautological, I want to reemphasize this new relationship. I want the men on the hospital staffs to keenly feel that they are an integral part of the system of medical education as adopted by this state. The part sustained by you gentlemen is just as essential in obtaining the license to practice medicine as the years in medical colleges.

I appeal to you, who are on the staffs of hospitals receiving interns to take this new relationship most seriously. I appeal to you to live up to your legal requirements. Be real clinical teachers. Take the time, take the trouble to explain the reasons for the doing, as well as the practical applications of the work done. Do not merely permit them to watch you operate, but explain the reasons for operating; demonstrate the applied anatomy and technic. Let the intern feel that you are willing and desirous of helping him. Let him act as your first assistant, coaching and explaining as you operate. As the intern becomes experienced, you act as his assistant in those operations that you regard him as competent to perform under instructions. I have found as much interest, pleasure and profit in standing on the "off side" of the operating table coaching an intern as I have found in individual operating; at the same time it requires infinitely more alertness and conscious attention to details, because of the things that the operator has unconsciously trained himself to do automatically; he must be alert to secure to the intern the foundation for a similar proficiency.

On the medical side, do not stop at merely making a prescription, but discuss and explain your reasons for making the same. Take up the points in diagnosis, prognosis, dietetics, etc., with the intern. Seek to get the intern's own ideas on these subjects; they may be better than your own; then modify them as riper judgment and experience have taught you.

Prominent medical educators have urged as an objection against an official year of medical training being obtained in any but the hospital college, the fact that many of the smaller hospitals do not afford the adequate degree of laboratory and scientific training that a new graduate should have. This objection rests on a considerable basis of truth.

The young man, just graduated from a medical college, has been taught certain methods of scientific investigation that represent the last word in medical teaching. If that young man sees older men, of well established local reputation, not employing those methods, indeed seeming to pay little or no regard to their importance, the young man is apt to leave that kind of a hospital rather indifferent as to whether he employs scientific methods himself when he enters independent practice. He may lose the keen zest he had on graduation of always seeking for scientific truth and accuracy. If he follows the examples set in some hospitals, he will be complacently satisfied with prescribing compound tablets and even proprietary medicines.

Members of the hospital staffs, fully realize your new responsibility; fully recognize what this new relationship means and meet it. I appeal to the staff members here present to try and transpose their own feelings to the period when they were recent graduates. Try and think of how obscure and hazy certain things were to you when the ink on your diploma was not dry, and how now that the ink is faded those same things seem so obvious and self-apparent. Won't you give to the student-graduate that the state has entrusted to your hospital to train the full benefit of your practical experience?

Perhaps if you get right close to him it may prove a valuable postgraduate course to you as well as to him.

THE HOSPITAL AS A POSTGRADUATE SCHOOL OF TRAINING FOR ITS OWN STAFF MEMBERS

I am impressed with the fact that the clinical material and scientific equipment of even our smaller hospitals are not used as efficiently as they might be in providing what should prove a very valuable postgraduate course of training for its own staff members.

The more frequent and intimate conferences of the entire staff, in which matters of scientific import were considered, the closer relationship of each department to every other department, the holding of teaching clinics, the demonstrations of laboratory and Roentgen-ray methods and findings would all furnish a valuable course of postgraduate training.

Perhaps the recital of failures, the frank confession of not attaining the anticipated results from methods which had been advocated, might prove of even greater value than a demonstration of success.

The point that I desired to emphasize is that a position as a member of a hospital staff should carry with it the inclination on the part of that member to utilize his facilities and opportunities to increase his own store of medical knowledge, at the same time the relationship of all staff members should make the hospital a real postgraduate school.

Think over this entire hospital proposition anew.

Go back to the hospitals with which you are individually associated and see what you can do to widen and improve its relations to the topics considered.

HOSPITAL STANDARDIZATION *

To His Excellency, Hon. Martin G. Brumbaugh, Governor of Pennsylvania:

In pursuance of the duties imposed on the Bureau of Medical Education and Licensure by your Excellency and the General Assembly at its last session, in making the payment of the appropriation to the various hospitals of the commonwealth conditional on the approval of the hospitals by this bureau, we, as members of said bureau, have the honor to submit the following report:

We have found within this commonwealth 166 hospitals which are receiving aid from the state funds as a result of special bills of appropriation passed at the recent session of the General Assembly and approved by your Excellency. Of these, 84 are used as teaching institutions for medical students who there complete their fifth year of study according to the Act of Assembly and are trained in a practical manner to care for the sick. The remaining 82 hospitals exist solely for the purpose of affording to their several communities suitable institutions for the efficient care of their indigent as well as their affluent sick. Previous to the inquiry of your bureau, the state had concerned itself chiefly in efforts to see that each hospital, receiving its aid, shall provide an adequate number of free beds for the poor of the community, and the chief plea for aid rested on the extent of charity furnished. Your bureau has acted on the policy that a hospital to be worthy of the name and of the confidence of the public, should first be so manned and equipped as to perform efficient service even if it be to only a few and then, as its means permit, to extend its services as far as possible.

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*Report of First Inspection by the Bureau of Medical Education and Licensure, Sept. 1, 1916.

FIRST ATTEMPT AT STANDARDIZATION

Since this inspection was the first special effort made to obtain full knowledge of the condition of hospitals—their facilities for properly performing their work and the proper administration on the part of managers, superintendents and staffs—many perplexing situations arose. However, a fairly comprehensive idea has been acquired of the hospital situation in general and of the ones in our state in particular.

As a first step in starting the work and in clarifying the situation, the bureau asked certain groups of specialists who were connected with the various medical schools of the state, to formulate for the use of the bureau detailed schedules for the equipment of model laboratories. Also, to suggest what laboratory work should be done in every hospital as well as what extent of work might be asked of hospitals of various sizes. These schedules included the probable cost of equipping the suggested laboratories.

Literature containing this information was then sent to each hospital of the state. Enclosed also was a reminder of the fact that each hospital receiving state aid must establish and maintain pathological and clinical laboratories as well as an anesthetic department which shall be approved by the Bureau of Medical Education and Licensure. A month or two later a systematic inspection followed this forenotice.

METHOD OF INSPECTION

Every hospital receiving state aid was inspected personally by at least one member of the bureau, in most cases by two or more members, and in every case were the conclusions and recommendations of the inspector or inspectors endorsed by the bureau. The data on which the deductions concerning any hospital are based, were collected by taking cognizance of every condition which might affect the efficiency and the economic welfare of the institution. The inspection took note of the general condition and adaptability of the buildings, including the physical equipment for comfort and health; it involved also an investigation into the record-keeping, both financial and clinical; an inquiry into the extent of the equipment with the character and amount of work done in the pathological and clinical laboratories, the Roentgen-ray laboratory, the anesthetic, the obstetric, and other departments. In the teaching hospitals, having the service of interns, the inspectors sought for evidence of the clinical and scientific work performed by them, as well as for information as to the character of instruction received by the interns from the members of the staff. In connection with the study of the physical equipment in the various laboratories and other departments of the hospital, the members of the bureau made careful inquiry into the expert training possessed by those in charge of these special departments. In each case there was considered the type, the character, and the efficiency of the work done.

Having gleaned the information personally and as accurately as possible, your bureau speaks with confidence on the fitness and the future prospect of each hospital.

REPORT OF CONDITIONS AND NEEDS

After the inspection of the hospitals had been made, individual consideration of the findings was made by the bureau as a whole and appropriate recommendations were formulated for each individual institution. These were sent in writing to each hospital with the request that the bureau be notified when the requirements had been fulfilled. Thus a definite notice of requirements had been served on each hospital with a reasonable period of time granted for compliance with the requests before the current appropriation was jeopardized. The very general response, with a gratifying eagerness to benefit by the suggestions made, rendered the active enforcement of the Act necessary in but few instances.

CLASSIFICATION OF HOSPITALS

For the present purposes hospitals may be grouped into two general classes:

1. Teaching institutions.
2. Nonteaching institutions.

The former institutions include those hospitals which have the services of interns to whom they give the fifth year of instruction in practical medicine and surgery according to the requirements of the Act of Assembly of June 3, 1911, as amended by the Act of July 25, 1913. This Act says that the applicant for licensure in Pennsylvania "shall have completed a year as intern in a hospital which shall have at least twenty-five beds to each intern, devoted to the treatment of medical, surgical, gynecological and special diseases; shall maintain or establish cooperation with a maternity department or hospital, in which each intern shall have not less than six weeks' service, or the equivalent thereof, during which time he shall have attended or participated in the attendance on not less than six confinements; shall maintain a thoroughly equipped, modern pathological and clinical laboratory, proportionate to the necessities of the hospital; and the records on file of the cases treated in said hospitals shall give evidence of the laboratory work so done by the intern; shall maintain a department of anesthesia, consisting of one or more anesthetists, who shall have supervision over all the anesthesia given in the institution, and whose duty it will be to instruct all interns in the administration of anesthetics."

Nonteaching institutions are those which exist entirely for the service they may render to the sick of the community in which they exist. These hospitals concern your bureau quite as much as the others by reason of the fact that they especially need the direction and the care of some systematic form of management so as to secure efficiency in the service which they may render.

The following division of hospitals may also be made, being based on the type of work purposed and the scope of the work done: (*a*) General hospitals, doing charity and private work of all kinds; (*b*) private hospitals, of private ownership and managed for private gain; (*c*) near-private hospitals, doing a minimum amount of charity work; (*d*) emergency hospitals, established by the state through the influence of corporations for public utility service; and those established and conducted by corporations for their own private uses; (*e*) duplicating hospitals, several competing in a small community and none efficient; (*f*) uncompleted hospitals, awaiting state funds, and (*g*) unpromising hospitals, future existence is practically impossible and unwarranted.

AN IDEAL HOSPITAL

Much has been made of outward appearance by those who fail to understand the purpose of a hospital. A beautiful building of institutional type may appeal to the pride of the community but may fall far short of serving the beneficent purposes it should to the community. As the simple cottage frequently serves for the better home, so the less ostentatious building faithfully adapted to its purpose may house the better hospital. Your bureau has taken into special consideration certain points which they judge to be primary requisites in the formation of a good hospital. Among these are good buildings in a healthy location which are quiet, well-aired and lighted. They should be constructed of such material, and in such a manner as to make their renovation as perfect as possible with the least possible physical annoyance to the patients. Much attention should be given to ventilation, heating and air-space. Overcrowding of wards is a flagrant offense noticeable in many hospitals. The housing and feeding of patients need constant care and frequent reformations. Attention to these important considerations, vital as they are, however, do nothing more than secure a good infirmary; a large supply of accessories by way of equipment is essential to credit the institution with being a hospital worthy the name and confidence of a community. These accessories in equipment have been a matter of much concern to your bureau in their inspections; they are the essentials which should assure to the patient proper professional care. Their absence in the hospital is *prima facia* evidence of superficial work being done on the part of members of the staff in the care of their patients.

Among these accessories we look for a suitable operating room with adequate equipment; most hospitals have this. The fact that many were established at the instigation of some progressive surgeon who wanted a place for performing his work, assured this equipment. In many institutions the provisions have gone but little farther and the energetic surgeon is still exploiting his special field with the aid of state funds. The presence in the hospital of a pharmacy of fresh, standard medicines under proper supervision is all important; the absence of these, or the empirical use of the meager existing ones, may account for the tendency toward medical nihilism so prevalent in some professional circles, as well as for the tendency to resort to the more heroic operative measures where proper medication might effect a cure. Equipment for diagnostic purposes, indispensable as it seems to be for efficient work, is scarcely to be found outside of the larger institutions. Every hospital needs a more or less complete clinical, pathological, serological, bacteriological, bio-chemical, and Roentgen-ray laboratory.

Each patient, entrusting his or her welfare to the ministration of a hospital, is entitled thereby to the advantages of these and other essential means of investigation in the physician's quest to secure for him or her the safest and quickest return to health. No operation involving a general anesthetic, excepting only emergencies, and no curative effort should be attempted until the exact physical status of the patient is ascertained through the aid of these well-recognized auxiliaries. Every patient is eager for and should have the right to demand all possible positive knowledge in diagnosis before being subjected to the extreme exigencies of any method of treatment; guesswork no longer can suffice when by scientific investigation positive information may be obtained. The humblest institution, aiming to serve sick people and securing the encouragement of the commonwealth through aid, should be equipped to do as safe, as honest, and as efficient work as the proudest one in the state. The members of your bureau in their inspection have been keenly alert to the presence or the absence of these aids in each hospital; if present, to the evidence of their faithful use in service in the clinical management of cases. The use or nonuse of a complete record system readily revealed to the inspectors the fidelity with which these aids to diagnosis were utilized.

SOME DEFICIENCIES FREQUENTLY NOTED

The teaching hospitals, those having interns, situated in the larger cities, were found generally to be fairly well equipped with the essential apparatus required by law. Not a few in the smaller cities as well as in the larger cities were woefully deficient in laboratory equipment. Not infrequently laboratories were non-existent, and, where they did exist, were found to be tucked away in a dark corner with meager apparatus showing slight evidence of use. The Roentgen-ray equipment was generally of antiquated type, set aside as an heir-loom, giving evidence of some former spurt of scientific ambition. Hopes were frequently expressed that a practical, useful machine might be purchased but no specific effort and even no demand for the same was forthcoming. During this watchful waiting, obscure injuries and elusive internal maladies were necessarily receiving speculative treatment.

In many cases, anesthesia was administered by inexperienced interns fresh from college, or, by physicians whose work seldom calls for this duty and whose skill is consequently nondeveloped; no expert supervision was required and ill consequences were inevitable.

Most of the smaller hospitals and many of the larger ones had no provision for maternity cases. Not only were the interns debarred from their required training along this line in these institutions, but many mothers and babies fell into the hands of midwives, since no cheerful welcome was extended by these hospitals.

In a goodly number of hospitals the proportion of surgical cases ranged from 75 to 80 per cent. of those admitted—this to the almost total neglect of the medical side of the service. In many, patients were admitted and sent to the operating room without any preliminary scientific investigation and without any preparation whatever. Instances were elicited in which the patient was carried from the physician's automobile into the operating room, subjected to anesthesia and the knife, without any opportunity to secure her poise or the advantages of positive diagnosis, even though the case was not an emergency one.

In the smaller cities it was frequently observed that any and every physician in the community was allowed to bring patients to the hospital and perform major operations involving life without any regard to the competency of the physician and even without consultation.

Necropsy rooms were largely unknown and the non-establishment of a morgue was by no means infrequent—in fact in many instances where it did exist, it was found to consist of an old coal cellar largely filled with trash.

The almost universal custom was found to prevail of admitting to the wards, at a price far below the cost of maintenance, patients fully able to pay the full cost, without any effort on the part of the hospital authorities to establish the facts—and in a surprisingly large number of such cases full fees were being paid to the attending physician.

Case records were largely an unknown quantity and such as were found were very generally looked on with contempt and after a few months relegated either to the cellar or garret.

In rare instances only was there found provision for the care of cases of ophthalmia neonatorum, and very generally diseases of a social nature were excluded from service of the hospital wards by specific rules.

RECORD-KEEPING

Outside of the larger teaching institutions, scarcely any attention has been paid to a systematic formulation of case records. The only attempt at record keeping was generally a financial record book with a temporary clinical sheet and temperature chart. So glaring was the deficiency and so inadequate was the conception of the nature and value of such a system that the bureau, in response to many inquiries for information, decided to issue a series of record cards and sheets which might serve as a guide to be followed. These were sent to each hospital to serve as models, with the request that they or equally efficient ones be introduced and used in said hospital.

The value of such a system of records, by which there can be filed as a permanent report all the essential features in the whole management of the case, will not be questioned by any experienced physician. As a medicolegal document in defense of the hospital and staff, its value is almost daily proved. Moreover, any case having a detailed history recorded on entrance thereby candidly divulges many valuable facts suggesting diagnosis and treatment, and thereby not only enlightens the discerning physician, but insures to himself or herself further collateral investigation. In accordance with the system suggested by your bureau, the detailed record, without being cumbersome, includes a complete résumé of the personal history, bedside observations, laboratory investigations, treatment with its results, along with the financial statements of the case, so that any interested person can at any time secure this information for future use by applying at the office. The gleaning of this information has its own educational value to the physician, to the intern and to the nurse, and the accumulated product is a fund of knowledge to boards of managers whereby they can readily estimate the value of the services of the members of the medical and surgical staff and of the interns; likewise they may determine the competency of their superintendent. Careful and complete record-keeping is indispensable to a properly managed hospital.

The practical management of record keeping falls on the superintendent and staff, with the former as the responsible agent. No patient should be permitted to be discharged from the hospital until his or her record has been completed, and in no case should the records be filed without a written endorsement of accuracy by the physician in charge. The superintendent should be held responsible by the board of managers for the faithful performance of this duty in all cases whether they be charity or pay patients. The workmen's compensation law, in which both the employer and employee are interested, makes the keeping of such accurate and critical data all the more imperative. Your bureau feels that a faithful observance of this suggestion alone will be the means of vitally augmenting the efficiency of the hospitals of the state, and will raise many out of the desultory status of being mere infirmaries into the laudable position of being a real hospital in which scientific medicine is practiced.

MANAGEMENT OF HOSPITALS

There are two distinct functions in the management of a hospital which should be clearly understood by those in charge, viz., the financial and the professional. The former care is usually vested in a board of trustees or managers, and the latter in a hospital staff. Observation and experience have convinced us that they should not intertwine by having the same, or any of the same, representatives on both boards. The intermediary agent should be a superintendent who is versed not only in the intricacies of hostelry management but who also possesses a clear conception of the peculiar professional relations which must obtain throughout the institutional life. Each of these three executive forces should act positively within its own lines and yet correlate faithfully, if the hospital shall be effectively served.

Your bureau has found numerous instances in which boards of managers, directors so-called, have failed to direct and had even failed to comprehend the meaning of much of the activity which consumed the funds entrusted to their care. Frequently, the direction of the policies of the hospital has emanated from the dictations of some influential physician who presumed to advise on all matters even though they pertained to finances alone. Thus the state has unwittingly augmented the influence and emoluments of individuals under the guise of aiding charity and large portions of the local community has been driven away from the support of the hospital on account of the strife engendered by this condition. The members of the board of managers are generally a high type of business men, but when they are called to administer the funds of the hospital they are apt to be dazed by the influence of some mysterious, professional narcotic which ofttimes invalidates their accustomed efficiency. Exceptions are found in which the keenest business acumen is manifested and such institutions are generally in a thriving condition financially. Strange to say, we have found that the same keen, professional zeal seems to obtain in these hospitals, so we are convinced, that what makes for efficiency in one realm of hospital dealing makes for efficiency in all. Slovenliness is infectious, and, when permitted in one department, soon exists in all; so that the very atmosphere of the hospital ofttimes tells the tale by reflecting the efficiency or inefficiency of the management of the institution.

PUBLIC ATTITUDE TOWARD HOSPITALS CHANGED

Earlier in the history of hospitals, the idea generally prevailed that the best place for the care of the sick was in the home, especially if it was fairly well appointed. Hospital fevers rendered treacherous the lives of debilitated patients and no one but the absolutely indigent were exposed to its dangers. The opinion obtained also in many a community that all sorts of professional liberties were taken with the lives of patients who were treated by incompetent physicians in the hospitals; and, even in this enlightened age, some enter its portals with fear and trembling. These elements of danger, however, have vanished and the safety of a well-managed hospital is now recognized to be paramount to that of the best appointed home. A demand has therefore arisen for private rooms which seems out of proportion to the original intents of these corporate bodies. The state has been appealed to for assistance and well-to-do patients have at times presumed to accept the benefits of the state's aid. Even physicians have at times encouraged this acceptance so they might indirectly secure a higher fee. Such unjust conditions, your bureau thinks, should no longer be permitted to exist. All private rooms should serve as a source of revenue to the hospital and never as a source of deficit. The habit of admitting patients to the ward service at lesser rates than they are justly able to pay, and for less than it costs the hospital to support them—either because the patient wishes to economize or because the physician desires to be able to collect a fee—should no longer be tolerated. The full cost of maintenance should be required of all patients having the ability so to pay; under no circumstances should the physician profit as a result of charity extended by the state. Instances were numerous in which public corporations, assuming to care for their employees, did so with part aid from the state funds.

The Workmen's Compensation Law should serve as a helpful source of revenue to every hospital in the state. As to the amount of benefit to be secured by each hospital, much will depend on the systematic management of these cases by the individual hospital. Your bureau has already attempted to aid each hospital by distributing literature giving plans that were adopted by hospitals in the leading industrial centers of our state.

MANAGERS IN RELATION TO THE STAFF

Reference has already been made to the fact that they should be separate and distinct boards, each serving its peculiar function. In many matters the staff should serve in an advisory capacity to the board of managers but never to dictate its policies. In matters pertaining to financial receipts and disbursements, rooming and maintenance of patients, charges for use of special equipment, and for use of laboratories, etc., these should be under the direct control of the managers or their agents, the superintendent.

The medical and surgical staff, on the other hand, should have the power of directing the professional policies of the hospital. They should call the attention of the managers to the needs in equipment, laboratories, and other essential accessories which make possible the most efficient service that can be given to each patient. In the teaching hospitals, the staff should see that the interns make proper use of these aids. In all hospitals the managers should demand that these accessories when once secured shall be used faithfully by the staff for the benefit of the patients; and where staff members are found to be indifferent to the advantages offered they should be promptly eliminated from the hospital service.

THE SUPERINTENDENT

Some educator has said, "As the teacher, so the school." A similar analogy might be observed between the superintendent and the hospital. He is the intermediary agent between managers and staff and executes the policies of both. Your bureau has found frequent instances in which he did neither, but executed his own policies, entirely at variance with efficiency, and presumed to impose them on both these boards. This may have been done so craftily that each board unwittingly accepted the same. Most of the sins of omission as well as of commission in the management of hospitals have come about by lack of knowledge on the part of boards, or because of a lack of vision on the part of all concerned in respect to the possibilities confronting even the humblest institution. Your bureau in its constructive efforts, has attempted to aid the management in securing the better things while it called attention to the deficiencies. The superintendent proved to be either our best ally or our worst enemy in securing the needed improvements. In most cases the managers acceded readily in complying with our suggestions. The worthy superintendent led the way; the unworthy one generally fell by the way. If the latter type has not already been supplanted by another of larger vision, he must later succumb or institutional reform will be exceedingly difficult. Your bureau knows of no greater danger to hospital efficiency than an ignorant or lazy superintendent who has the ear of the board of managers.

ISOLATION ROOMS

Much valuable time and space is lost to many hospitals because of the lack of proper isolation departments into which may be placed patients suffering from communicable diseases. Whole wards have been rendered unserviceable for weeks on account of the presence of some of the apparently less harmful children's diseases which inadvertently broke out among its patients. Proper and prompt isolation with adequate fumigation could add many bed-days to such hospitals. Moreover, it would spare other susceptible patients from the danger of contracting the same disease. Scrupulous care in segregating septic cases is also imperative; indifference to this has relegated a few hospitals of the state to the realm of primeval hospital ages, in the minds of your inspectors. In some instances it was observed that neighboring industrial concerns declined to utilize the facilities of the adjoining hospital on account of the very high percentage of septic cases occurring in the service of the institution. It were better that a hospital close its doors to all patients than jeopardize their lives by subjecting them unsuspectingly to greater ills than those from which they are now suffering.

SECLUSION ROOMS, MORGUES

The hospital in its efforts to care for all kinds of extreme cases of accident and disease naturally is called on rather frequently to witness the graphic terminal hours of the moribund. Under no circumstances should these be passed in the presence of other patients. Not infrequently have we found this to be imperative because of the failure to have provided any kind of seclusion room into which such patients may be placed. In a few hospitals the absence of any morgue made it necessary even to keep the corpse in the bed in the presence of other ward patients for hours until arrangements for its removal by an undertaker could be made. Such conditions militate mightily against the physical welfare of healthy individuals and much more so against those whose nervous system has been debilitated by disease. It is needless to say that peremptory demands were made to have corrected such gruesome conditions.

NECROPSIES

Much of the progress in pathology and diagnosis, so characteristic of foreign hospitals, is due to the fact that abundant opportunity is given for postmortem examination to students and practitioners alike. Some countries require that all charity cases cared for by public funds shall, in the event of death, be subject to scientific investigation; likewise every private case treated in the institution on whom a positive ante-mortem diagnosis could not be made. Such investigations vitalize in the mind of the student certain apparently commonplace signs and symptoms and make him more alert to the detection of kindred conditions in subsequent cases. Your bureau has insisted on the management in teaching hospitals, that every available opportunity be given for this practical study to their interns under the direction of a competent pathologist. Likewise has it encouraged the management of every hospital to provide a necropsy room in which the several physicians of the staff and of the community may pursue this most helpful form of post-graduate work.

DUPLICATION OF HOSPITALS

A certain amount of administrative, heating, lighting, ambulance, etc., expense is necessary irrespective of the size of the hospital. The larger the hospital, therefore, the less is the pro rata cost of maintaining each patient, other conditions being equal. In numerous smaller cities of the state, there exist several hospitals, none of which as a rule seems to thrive, but all are striving for existence and hoping some day to become efficient institutions. The cause for this increasing number of hospitals lay largely in the fact dissensions arose in the management or among the patronizing physicians of the original plant. A division occurred, and the seceding professional men, carrying with them their influential patrons, started another hospital. Through political influence, this was encouraged by state aid so that now the sum of money available for certain districts is divided and dissipated without serving effectually the greatest possible number of people. Competition between hospitals, as between doctors, because of the unwholesome strife which it engenders, is apt to be more harmful than helpful in securing efficient service. Your bureau has urged the interested parties in these several organizations to attempt to form a union of forces and thus secure the numerous benefits which would accrue from united efforts. It would furthermore suggest that future encouragement be withheld by the state from institutions where their presence is not needed; that the policy of the state tend rather toward an effort to perfect the most promising ones by concentrating the available funds on these. Such a policy would soon eliminate the less efficient institutions and serve as a wholesome stimulus in obviating. to the detriment of the public, needless strife. It would also aid in either eliminating from activity many incompetent surgeons and other assumed specialists or require them to qualify for the better service demanded in the more efficient institution.

It is rare that a small community can muster enough competent doctors to care effectively for all the departments of a single hospital and therefore the situation becomes hopeless when several are attempted.

STATE EMERGENCY HOSPITALS

In the commonwealth through a special act of Assembly there were established certain hospitals for the purpose of caring for the emergency work which seemed to be especially great in these several industrial communities. Most of these were found to be seriously overcrowded. Investigation into the nature of the cases treated revealed the fact that these institutions were being utilized as general hospitals for the treatment and care of all kinds of cases, chronic as well as acute, for general operations as well as emergency, and were so crowded that there appeared to be plausible reasons for the demand for more space. If, however, general cases, not acutely injured cases, were removed to the general hospitals which in all instances were found to be in close proximity, there would be ample room to accommodate all the cases in the community for which these special hospitals were established. To the surgeon who cares for these emergency cases, there comes a strong temptation to enlarge his field of experience by admitting into and operating in these hospitals on all kinds of surgical conditions. A case once operated on requires room and care for subsequent treatment. The best available space is naturally selected for these choice cases, and the less fortunate accident cases must accept what remains; if indeed any space at all has been allowed to remain.

A clause in the law permits the surgeons in charge of these institutions to admit other than emergency cases, *provided they have room;* but an unwarranted freedom in the interpretation of this provision seems to have defeated the chief purpose of their formation. When emergency cases receive first reservation in their admission, and other less urgent cases are sent to general hospitals, the worthy cases will receive better attention and there will be little cause for complaint about crowding. This diversion from their original purpose, we think, needs serious consideration and immediate efforts at reformation by those in authority over these institutions.

CONCLUSION

Many and glaring as have been the faults noted in numerous hospitals receiving state aid, your bureau has been greatly encouraged by the general attitude of managers in their eagerness to remedy defects as suggested in so far as was possible. This desire to do their best by the institution under their direction, convinces us that much of the ills were unwittingly tolerated; and that, with the self-confident conviction of efficient service being rendered on the part of the staff, the work was permitted to continue in the same lethargic manner without any effort toward higher efficiency. The occasion now having been given for a standardization of the humbler institutions with the more efficient ones, much may be expected from the worthier ones by way of advancement. A few self-satisfied and helpless hospitals, more or less dominated by private influences, ought no longer to be nurtured by the state. Specific recommendations on such, or on any hospital of the state, may be had later from your bureau on request.

The task imposed on the bureau has been an arduous one, and encumbered by many perplexities and misunderstandings; but, by fearless and persistent efforts, the difficulties are being surmounted and great improvements are already in evidence. An outline of requirements was clearly presented to each institution with a request that immediate efforts be made to comply with the program presented. A promise to comply with the suggestions was accepted as the first evidence of cooperation; a subsequent statement of having complied, was accepted in full faith until such time as a contemplated re-inspection can be made, and the hospital for the time being was placed on the approved list for a continuation of its appropriation.

In view of these reforms being accomplished we consider the policy of standardization of hospitals, instituted by your Excellency and the General Assembly, to be far-reaching as a humanitarian act, and one of the most beneficial toward securing uniform efficiency in hospitals ever adopted in our state, or any state. We, therefore, urge a continued prosecution of the reforms and improvements already begun so that the people of our commonwealth may ever profit by its beneficent effects.

We have the honor, Your Excellency, to most respectfully submit this our first report on hospitals and hereby subscribe our names as members of the Bureau of Medical Education and Licensure.

Signed,
J. M. Baldy,
Samuel G. Dixon,
Irvin D. Metzger,
Adolph Koenig,
Daniel P. Maddux,
C. L. Johnstonbaugh,
Nathan C. Schaeffer.

PENNSYLVANIA HAS NO PLACE FOR AN EPILEPTIC

I submit this case to the people of Pennsylvania—a state without a debt—and ask them what they think about it.

An elderly Philadelphia gentleman, in modest financial condition, whose daughter was the unfortunate victim in this case, told me the circumstances yesterday. Some years ago the child was stricken with epilepsy. She was kept at home, but last spring her mental condition became such that it was necessary to send her to an institution. One hospital after another was visited. Some hospitals for epileptics refused to accept the patient because she was insane. Some hospitals for the insane refused to admit her because she was epileptic. Still others objected to her admission because her ailment was incurable. "We cure, but do not act as custodian of incurables." That was the sentence imposed by institution after institution.

At one of the largest and newest hospitals in the state, and one which is a state institution, the unfortunate father received substantially this advice:

"Go see Senator So-and-so before you apply to such-and-such a hospital. Perhaps he can get your daughter cared for." But the kind-hearted senator could do nothing, powerful as his influence is in that locality.

In another instance the father of the girl was urged by the hospital authorities to use "political pull" to get her admitted into some other institution. The Norristown asylum was visited, but it was found overcrowded and with a waiting list.

In all the father was turned away from eleven hospitals whose specialty is either epilepsy or insanity. A twelfth was appealed to and the young woman was admitted.

This man was quite willing to pay a moderate and reasonable sum for the proper care of his daughter. In his distress he discovered that Pennsylvania, big as it is and rich as it boasts of being, does not apparently maintain a hospital for unfortunates who are both epileptic and insane.

Of ordinary hospitals we have a surfeit. Official reports show that thousands of hospital beds in Pennsylvania are unused every day.

But it seems there is a lack of this especial sort of hospital facility for the epileptic insane of which, the doctors tell me, there are unfortunately a large number. Hence this question: Is Pennsylvania unable to provide in civilized fashion for all of its mentally deficient?—Girard's Topics of the Town in Philadelphia *Ledger*.

PEDIATRIC NEVERS

Never give a child a dose of medicine without a clear and definite indication.

Never forget that the most reliable antipyretic measure for infants is the use of cold.

Never employ quinin for the reduction of temperature in children, except in cases of malaria.

Never fail to first clear the mouth and pharynx of mucus in all cases of asphyxia.

Never forget that nothing so well indicates that a child is thriving as an increase in weight.

Never forget that woman's milk is the ideal infant food.

Never fail to insist that the mother train the child to regular nursing habits.

Never experiment too long with unsatisfactory mother's milk; if it cannot be made to agree with the child in two or three weeks, get a wet nurse or start artificial feeding.

Never make a diagnosis of poliomyelitis or rheumatism or malignant disease in a child until you have ruled out infantile scurvy.

Never fail to impress on the parents of a choreic that the general management of the case is as important as the administration of drugs.

Never hesitate to say that whooping cough is one of the most contagious and dangerous diseases known.

Never forget that severe and fatal nephritis may follow a mild case of scarlet fever.

Never make a child with measles swelter under thick covering; light covering should be used during the entire febrile period.

Never neglect to give a daily warm bath to a child as soon as the rash of measles has subsided; follow by inunctions, to facilitate desquamation and prevent the dissemination of the fine scales.

Never constrict the child's limb in any way after it has been vaccinated.

Never neglect to examine a child for diabetes if polyuria is present.

Never confuse empyema with unresolved pneumonia, pleuropneumonia, or tuberculosis.

Never make light of an attack of bronchitis in an infant; every such attack should be regarded as a possible precursor of pneumonia.

Never regard a case of whooping cough as over until you are sure that all dangers from bronchopneumonia are past.

Never make a diagnosis of scarlet fever from the eruption alone, as a great many skin eruptions resemble it.

Never forget that the greatest danger in measles arises from pulmonary complications, and the frequency is greatest in children under 2 years of age.

Never neglect the ears in scarlet fever because there is no pain or tenderness; otitis may develop without these symptoms.—*Med. Rev. of Reviews.*

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Susquehanna—Dever J. Peck, M.D., Susquehanna.
Tioga—
Union—William E. Metzger, M.D., Alvira.
Venango—J. Irwin Zerbe, M.D., Franklin.
Warren—Ira A. Darling, M.D., Warren.
Washington—John B. McMurray, M.D., Washington.
Wayne—William T. McConvill, M.D., Honesdale.
Westmoreland—Elsner L. Piper, Export.
Wyoming—Herbert L. McKown, M.D., Tunkhannock.
York—Elmer S. Stambaugh, M.D., Thomasville.

All communications should be addressed to the Pennsylvania Medical Journal, Athens, Pa.

The Medical Society of the State of Pennsylvania does not assume responsibility for any statements or opinions published in this Journal.

Athens, Pa., December, 1916

GREETINGS FROM PRESIDENT CODMAN

The Medical Society of the State of Pennsylvania has recently inaugurated several policies which have a direct bearing on the present and future of the organization. The most important was the establishment of the Endowment Fund to provide for the future. In order that the fund might steadily and systematically accumulate, the Board of Trustees, with keen business foresight, bought 100 shares in a building and loan association. These shares will involve a yearly outlay of $1,200. At maturity a handsome sum will be added to the endowment fund. In a very short time an appeal will be sent to all members and county societies to contribute to the fund. It may also be added to by bequests and otherwise. As soon as the fund yields sufficient revenue it will be in order to reduce the assessment of the component county societies and thereby lessen the present burden. The object of this fund will be to guarantee the future of the society, to furnish funds for all emergencies, to provide for a secretary-editor who shall give his entire time to the society and The Journal, and lastly to enable the Medical Society of the State of Pennsylvania to own its journal.

The establishment of the Committee on Archives insures the preservation of the early history of the society. In another column will be found a request from the committee for material to aid them in their work.

The Committee on Public Policy and Legislation is making history. Already they have formed with a like number of members from the homeopathic and eclectic societies a working body called the Legislative Conference of the Medical Profession of Pennsylvania. They have mapped out a brilliant campaign, and will succeed only with the personal help of each medical man in this state. Conferences are about to be held with the Workmen's Compensation Board, and the suggestions of the Medical Conference will be presented. If these are acceptable to the board, they will be incorporated into the amendments which the board has been asked to present to the legislature. The call for everybody to work will be issued through The Journal, so that every man can carry the amendments with him and present all his facts in logical sequence. The same course will be followed with the proposed Health Industrial Insurance Act. Success depends on individual work. All will be notified and all must work. We want action, steady, deliberate and determined. This will be the first time all the medical profession of the state will be found working as a unit at Harrisburg. The profession of medicine will present unanimous opinions on legislative matters.

The rapid approach of the holiday season, with all its joys and festive reunions, offers an opportunity to thank each member of the society for his loyalty and to wish every one peace and contentment.

Charles A. E. Codman.

AN APPEAL TO OUR MEMBERS

Your Committee on Archives finds it necessary to appeal to the members for assistance in searching for, collecting and preserving every scrap of information relative to the history of our state society, for a history to be published in the near future.

While three score and eight years does not make our society very ancient, yet it is a period of existence sufficiently long to entitle us to a history. It was in 1848 our medical ship was launched, and it has been commanded and piloted by some of the most eminent men of our profession. Many have been teachers in our great medical schools; some have been pioneers in medicine and its collateral sciences; many have been authors of world-wide fame; some have had honorary degrees conferred on them by the most ancient and renowned universities of the world; and the fame of many has reached every land where civilized speech is spoken. These men have aided in the upbuilding of scientific medicine in North America. What names are more illustrious, who have done more for human safety, comfort and existence than the founders and past officers of the Medical Society of the State of Pennsylvania? The lives of these great men cannot be easily forgotten; their memory is a sweet benediction dwelling today in the hearts and lives of many who knew them not and will be in the lives of many yet unborn. Is not our pride for this noble heritage pardonable?

Better to portray the lives of these great men and to hasten the acquisition of material for our history, your committee thinks that its work will sooner reach fruition if each county society will immediately make arrangements to have a committee on archives appointed to collect material for its own history. For, after all is said, the history of the county societies collectively is a history of our state society.

We need your assistance to make this work a success, and every year it is postponed it becomes more difficult of accomplishment. Do not destroy any daguerreotype, engraving or photograph of any of our founders or past officers. Do not throw away any old medical pamphlet without examining it, for what is rubbish today may become history tomorrow. Search your library and storeroom to learn if you possess any copies of memorial addresses on any of our founders, past officers or distinguished members, for quite often these prove to be rich mines of historic and biographical wealth. The committee will welcome the gift or loan of anything that has a bearing on the history of the society.

Albert M. Eaton, Chairman,
2017 N. Thirteenth Street, Philadelphia.

THE PHILADELPHIA MEDICAL MERGER

The merger of the Medical School of the University of Pennsylvania with the Medico-Chirurgical College has been accomplished. By it the former institution becomes the owner of the buildings of the latter, and takes over its professors and assistant professors as professors of similar rank of its medical departments. The buildings formerly belonging to the Medico-Chirurgical College are still being used for teaching the combined medical classes. The city has condemned the hospital and medical school buildings of the younger institution to make it possible to build its Parkway, the new boulevard about to be constructed from City Hall to Fairmount Park. The University of Pennsylvania will use some of the money obtained from the sale of this property to the city for the development of its Medico-Chirurgical Hospital and Graduate School. There is in the mind of the public a disposition to doubt the actual accomplishment of the affiliation of the Jefferson Medical College with the University of Pennsylvania. Rumors are afloat which are being thought credible that some inability to reach a satisfactory conclusion of the combination exists. The general profession hailed the announcement made last spring with great favor. It would be a blow to Philadelphia's expected primacy in medical education if these two great schools cannot join their forces and give the city the benefit of an active rival to Chicago, Boston and New York.

PENDING MEDICAL LEGISLATION

One of the encouraging signs of the times, showing so emphatically, as it did, the new "get together" tendency of the medical profession of the state of Pennsylvania was evinced on November 23 when representatives of the Homeopathic State Society, of the Eclectic State Association, and of the Medical Society of the State of Pennsylvania met and considered pending medical legislation. It was agreed that the three societies should work together in the interests of the medical profession. This does not presage a reign of selfishness. The profession is just as altruistic as ever, but it has determined to look out for that which so vitally concerns its future.

At this meeting it was agreed to ask in the next legislature certain amendments to the Workmen's Compensation Law, namely, a medical man to be associated with the Compensation Board, to assist in its medical work; a medical board as a board of appeal in medical disputes; an increase of the disability period from 14 to 28 days and disability to date from the time the patient reports to the physician for treatment; elimination of the term "major operation" and an increase of the allowance for medical and surgical treatment to $200 instead of the maximum of $75 as now prescribed in the law. This committee will also keep in touch with health insurance measures.

This is a momentous time for our profession. Never in the history of our profession has there been such need for strong organization and unity of action on the part of the physicians of this state. Coming changes in the social and business life of the physician are just as important to the practitioner in the country and small towns as in the larger centers. The rapid trend in this state is toward state or contract medicine. If we are not organized, we will be run over. Because the medical profession was out of touch with the development of the Workmen's Compensation Act, we are unfairly dealt with, and, to make it satisfactory, the influence of the medical profession must be felt.

Even more important is the propaganda to pass in this state a compulsory health insurance law for all employed persons who earn under $100 a month. This law means that the medical attention for these workers and their dependents, including even obstetrical service, will be supervised and paid for by the state. It is a matter of tremendous importance. It has possibilities of tremendous good or equally tremendous harm for the future of medical practice in Pennsylvania.

What will happen if the medical profession is not represented before the legislature by an organization large enough and strong enough to command respect? To do this, we must enlist the man in the small town and the country doctor. We must be in a position to dictate the terms. It will not do to wait until the lines are drawn and plans laid to enter protest against any unfair division, as was the case in England when the government installed a system of health insurance on a basis extremely unfair to those who must do the work. Never was there any time in the history of the world so important to the profession as today. The various medical societies should be ever watchfully alert to know every bill introduced which even in the slightest way has any relation to medical practice.

Get better acquainted with your assemblymen and senators. Assure each of your interest. Ask him to keep you informed of any bills affecting your profession. Offer him your opinion and assistance. Let him know you cooperate with him. He will appreciate your assistance and, more than you realize, will shape his opinion from yours. In all legislative sessions there are those who seek their own selfish ends, little caring for the good of others, the various cults, cranks, whatnots, seeking recognition by breaking down the present barriers and the lowering of the safeguards which have been carefully erected to preserve the highest ideals of the people.

Every newly elected legislator is impressed with the belief that our laws are incomplete. The physician who reads his medical journals and the lay press knows what is going on in the legislature, but he rarely raises his voice in either commendation or in tactful protest. Doctor, your duty demands that you should keep in touch with your lawmaker. If you fail to do this, you cannot complain if your disinterestedness works for your own hurt. If you exert your influence with your lawmakers, you will contribute your part to the uplift your profession so badly needs today.

Every physician in Pennsylvania is vitally interested in the legislation about to be considered by the coming legislature, and, being interested, he should get busy with the members of the house and senate of his district. It is unwise to wait until the legislature is in session before trying to impress the lawmakers with the importance of our measures. They must be impressed now. After the session opens they will be altogether too busy with bills in which they are more interested. Get busy right now. Work on the new and old members to impress them with the importance of our request to ourselves and to the public if it will secure the best service from the medical profession. Get your local editors interested. They can be of invaluable help. It is the men at home that must exert the influence. Your state committee is a stranger to your representatives and has no influence, except so far as you direct it. The local men know best how to secure this support, whether it is done through the legislative committee of the county society, or by the family physician, or any personal or political friend.

As important as is the individual effort of each physician in the bettering of medical legislation, how far greater is the importance and advantage of the "get together" meetings. If competition be the life of trade, cooperation is the life of the profession. The field is enormous; the interests many and complex. None of us can solve them single handed. The fight is on. It will never be won by a few. It requires union, numbers and complete understanding among the entire medical profession. It is only by strong organization we can hope to be recognized and given a voice in the matters coming before us, and make our state organizations a bulwark behind which the individual practitioner cannot only be safely entrenched but can fight out his future economic battles.

J. B. McAllister, Chairman,
Committee on Public Policy and Legislation.

OUTSIDE TALENT OR LOCAL TALENT?

An editorial in the *Kentucky Medical Journal* for November, referring to the annual meeting of that society, said: "The Hopkinsville meeting has gone into the history of Kentucky medicine as one of the most complete and profitable that has ever been held in the state. The scientific program was entirely filled by the Kentucky doctors, and there was not a single paper read which did not hold the attention and interest of those in attendance. More members participated in the discussions than in any two previous meetings."

The Committee on Scientific Work of our state society has for several years asked a few distinguished men from outside the state to accept places on the program of our annual sessions for two reasons: first, in order to secure the best authority obtainable on certain subjects, and, second, to afford an opportunity for our members to see and hear eminent non-resident physicians and surgeons. The program of the surgical section at Scranton this year contained only the names of members and a larger proportion than usual of men from outside of Philadelphia and Pittsburgh. The absence of any men from outside the state caused some unfavorable comment when the program was first made public, but the meetings of the section were well attended.

The placing of a few men from outside the county on the program of a county society is certainly desirable but, if carried too far, it fails to develop the rank and file into writers and speakers, and just so much lessens their value as practitioners of medicine and surgery, and as a force in the community.

"WHAT DO PHYSICIANS CHARGE?"

Members are requested to read an article with the above heading taken from the *Medical World* and reproduced on advertising page xii. This article was referred to in last month's issue but was inadvertently omitted. In this connection attention is called to the fact that the State Workmen's Insurance Fund Commission at Harrisburg wrote each county society last month requesting a copy of the schedule of fees used by the members of the society, the same to aid the board in the settling of bills under the Workmen's Compensation Act. If an old fee bill which indicates charges less than those prevailing in the locality at the present time is sent, attention should be called to the fact.

A fee bill adopted by the county society has its advantages and its disadvantages. If one is used it should be understood that the several items are to be considered simply as a minimum charge and that adequate additional charge should be made for bad roads, inclement weather, unusual detention, night work, minute examinations and unusual responsibility. No fee bill should be so worded as to prevent a physician from making proper reduction where the financial circumstances of the patient warrants it.

INDUSTRIAL WELFARE AND EFFICIENCY CONFERENCE

The Fourth Annual Industrial Welfare and Efficiency Conference, under the direction of the Pennsylvania Department of Labor and Industry, with the cooperation of the Engineers' Society of Pennsylvania, was held at Harrisburg, November 21, 22 and 23, 1916. There were present railroad presidents, manufacturers, superintendents, foremen, engineers, trainmen, physicians and others. The coming together of employers and employees in these mutual conferences is productive of much good to all parties concerned.

Governor Brumbaugh in his address of welcome referred to the fact that workmen have shorter hours than heretofore, and expressed the opinion that unless the recreation hours thus gained were properly employed neither laborer nor employer would be benefited by the shorter hours. The state, the employers and the employees should work together to provide proper recreation for the men when off duty. Efforts should be made not only to remove the dangers to the workmen while employed, but to remove, as far as possible, the dangers from various sources when the men are not employed.

The program for the third day was devoted to more strictly medical matters, including health insurance, medical supervision of workmen, the prevention of injuries, the prevention of hazards in chemical industry, tuberculosis, etc.

PHILIP MILLS JONES

Dr. Philip Mills Jones, secretary of the Medical Society of the State of California and editor of the *California State Journal of Medicine* for thirteen years, died in San Francisco, November 27, from pneumonia, aged 46 years. Dr. Jones was a Trustee of the American Medical Association from 1908 to the time of his death. He was a hard worker, a brilliant writer and a forceful speaker. The November issue of the *California State Journal of Medicine* contained the following:

> Philip Mills Jones, Attorney
>
> The legal difficulties and troubles of the many members of the society took up so much time of the secretary, and it was difficult to get lawyers to understand medicine, that the secretary had to study law, and on Oct. 19, 1916, passed the bar examination and was admitted to practice as an attorney and counselor at law in all the courts of the state.

HONOR ROLL FOR 1917

Three societies, Juniata, Bucks and Wyoming, are at the time of writing in the lead in the payment of per capita assessment for the year 1917. The following figures indicate the percentage of members paid:

Juniata County	45 per cent.
Bucks County	41 per cent.
Wyoming County	40 per cent.

The honor roll for next month will comprise those societies that have paid for at least one half of their 1916 membership. Which will be the first society to reach the 100 mark?

CHANGES IN MEMBERSHIP OF COUNTY SOCIETIES

The following changes have been reported since the November Journal was printed, up to December 5:

Allegheny County: *New Members.*—Edward S. Dickey, Lester E. Lacock, Stelios N. Sakorraphos (by transfer from Philadelphia County Society), Pittsburgh; William C. Minnich, McKees Rocks; John Zeok, Braddock. *Deaths.*—John Floyd Holt (Western Penn. Med. Coll., Pittsburgh, '03) of Pittsburgh, in Parker, November 11, from pneumonia, aged 39; Robert Latshaw Walker (Univ. of Pennsylvania, '66) in Carnegie, November 19, aged 79. *Removals.* — Richard E. Poole from San Diego, Calif., to Puente, Los Angeles; Milton D. Schumaker from Tarentum to Gen. Del., Albuquerque, N. M.

Beaver County: *New Member.*—William S. Grim, Beaver Falls. *Removal.* — Robert S. Hensell from Midland to Glenmore Avenue, Dormont, Pittsburgh (Allegheny Co.).

Blair County: *Removal.*—James C. Crawford from Cabazon, Calif., to Orange, Calif.

Bucks County: *Removal.*—Walter H. Brown from Wollaston, Mass., to 280 Glenwood Avenue, Bridgeport, Conn.

Butler County: *New Member.*—Willis A. McCall, Butler (by transfer from Washington County Society). *Removal.*—James H. McClelland from Argentine to Grove City (Mercer Co.).

Clinton County: *Death.* — Joseph Hammond Huston (Jefferson Med. Coll., '66) of Clintondale, in Lock Haven, October 26, from disease of the bladder, aged 78.

Columbia County: *Death.*—George E. Follmer (Jefferson Med. Coll., '07) in Orangeville, recently, aged 41.

Dauphin County: *New Members.*—Charles A. Snyder, Marysville (Perry Co.) (by transfer from Perry County Society); Floyd T. Romberger, Elizabethville; Gurney M. Schminky, Gratz.

Delaware County: *Removal.*—George B. Sickel from Woodlyn to 702 Sproul Street, Chester.

Erie County: *Removal.*—Frank E. McElree from Girard to Greenville (Mercer Co.).

Franklin County: *Death.*—James S. Kennedy (Jefferson Med. Coll., '80) of Ft. Barrancas, Fla., in Washington, D. C., October 7, aged 59.

Indiana County: *Removal.*—Ray N. Lewis from Livermore (Westmoreland Co.) to Apollo (Armstrong Co.).

Jefferson County: *New Member.*—Earl E. Houck, DuBois (Clearfield Co.). *Removals.* — Arthur R. McNeil from Coal Glen to Apollo (Armstrong Co.); Harry A. Vosburg, Jr., from Tyler (Clearfield Co.) to DuBois (Clearfield Co.).

LACKAWANNA COUNTY: *Death.*—John F. Kane (Georgetown Univ., School of Medicine, Washington, D. C., '11) in Minooka, November 21, following an operation for intestinal trouble.

LUZERNE COUNTY: *New Members.*—Andrew A. Fabian, Plymouth; Henry M. Neale, Upper Lehigh; Walter F. Wood, White Haven. *Removal.*—Leland C. Rummage from Sweet Valley to Ramsay, Mich.

LYCOMING COUNTY: *Removals.*—James S. Dougal from Milton (Northumberland Co.) to 4606 Old York Road, Philadelphia; Henry Ecroyd from Muncy to 32 Bull Street, Williamsport.

McKEAN COUNTY: *Removal.*—Charles F. Elliott from Mt. Jewett to 11 Main Street, Bradford.

MERCER COUNTY: *Death.*—Guert M. Tinker (Univ. of Pennsylvania, '94) in Sharon, November 8, from blood poisoning, aged 47.

NORTHUMBERLAND COUNTY: *New Member.*—James O. Mohn, Shamokin. *Removal.*—Ralph M. Markle from Sunbury to 227 Pine Street, Harrisburg (Dauphin Co.).

PERRY COUNTY: *Transfer.* — Charles Snyder to Dauphin County Society.

PHILADELPHIA COUNTY: *New Members.*—Alfred Cowan, Arthur M. Dannenberg, Clarence H. Fritz, John F. Gorman, Francis G. Harrison, Henry D. Hazzard, Harry H. Hornstine, Archibald A. Howell, David T. Huston, Jacob K. Jaffe, Grace D. Kimbrough, Walter Lowa, William McCombs, Sarah Alice May, Samuel Mazor, John F. Mecluskey, C. Howard Moore, J. Richardson Parke, William G. Ramsey, Charles Schabinger, George J. Schwartz, Alexander Sterling, Elise Whitlock-Ross, Philadelphia; Charles Herbert Doe, Rochester, Minn.; Marie A. Seixas, New York City. *Transfer.*—Stelios N. Sakorraphos, to Allegheny County Society. *Deaths.*—Marcus A. Franklin (Jefferson Med. Coll., '70) in Philadelphia, November 6, from edema of the lungs, aged 73; Walter F. Brown (Medico-Chirurgical Coll., Philadelphia, '01) of Morton, July 26, aged 39; Harry W. Weyant (Univ. of Pennsylvania, '95) in Philadelphia, November 2, aged 47. *Removals.*—Ardrey W. Downs from Philadelphia to McGill University, Montreal, Canada; Claude A. Dundore from Philadelphia to N.-E. Cor. Fifth and Center Streets, Ashland (Schuylkill Co.); S. Finley Gordon from Warren (Warren Co.) to Connecticut State Hospital, Middletown, Conn.; Lyndon H. Landon from Philadelphia to Carnegie Steel Company, Pittsburgh (Allegheny Co.); John B. Ludy from Philadelphia to U. S. Army, Hawaii Dept.; Barton K. Thomas from Philadelphia to 324 High Street, Pottstown (Montgomery Co.); Henry E. Wetherill from Drexel Hill (Delaware Co.) to R. D. 1, Phoenixville (Chester Co.); Alexander H. Davisson from Ardmore (Montgomery Co.) to 1017 South Forty-Sixth Street, Philadelphia; Theodore W. O'Brien from Philadelphia to Seattle City Hospital, Seattle, Wash.

SCHUYLKILL COUNTY: *Deaths.*—Phaon Hermany (New York Univ., Med. Coll., '63) in Mahanoy City, November 18, aged 76; Harry M. Wasley (Medico-Chirurgical Coll., Philadelphia, '00) was found dead on the mountains just north of his home at Shenandoah, November 28, death being due to heart failure, aged 43.

SOMERSET COUNTY: *New Member.*—J. Earl Dull, Somerset.

TIOGA COUNTY: *Death.*—Lewis Darling (Univ. of Michigan, Med. School, Ann Arbor, '66) in Lawrenceville, October 20, aged 76.

WARREN COUNTY: *Removal.*—Michael V. Ball from Warren to New York Medical College and Hospital for Women, 19 West 101st Street, New York City.

WASHINGTON COUNTY: *Transfer.*—Willis A. McCall to Butler County Society.

WESTMORELAND COUNTY: *New Members.*—Clifford C. Baldwin, Forbes Road; William M. Barron, Latrobe; John M. Skirpan, Monessen. *Removals.*—Abraham Owaroff from Jeannette to Donora (Washington Co.); Wilder J. Walker from Greensburg to 736 Wallace Avenue, Wilkinsburg (Allegheny Co.).

PAYMENT OF PER CAPITA ASSESSMENT

The *per capita* assessment for the term Sept. 1, 1914, to Jan. 1, 1916, has been received from component county societies since the November report, as acknowledged on page 119 of the November JOURNAL, as follows:

Nov. 11,	Allegheny	1034	6558	$2.75
Dec. 4,	Allegheny	1035–1036	6559–6560	5.50

The *per capita* assessment for the year 1916 has been received from component county societies since October 31, as acknowledged on page 119 of the November JOURNAL, as follows:

Nov. 4,	Philadelphia	1709–1733	6695–6719	$68.75
Nov. 15,	Jefferson	64	6720	2.75
Dec. 4,	Allegheny	972, 973, 975	6721–6723	8.25
Dec. 11.	Berks	114	6724	2.75

The *per capita* assessment for the year 1917 has been received from component county societies since October 23, as acknowledged on page 119 of the November JOURNAL, as follows:

Nov. 2,	Northumberland	1–2	8– 9	$5.50
Nov. 3,	Beaver	1	10	2.75
Nov. 9,	Westmoreland	1–4	11–14	11.00
Nov. 11,	Juniata	1–2	15–16	5.50
Nov. 14,	Dauphin	2–4	17–19	8.25
Nov. 15,	Juniata	3	20	2.75
Nov. 22,	Juniata	4	21	2.75
	Butler	1–9	22–30	24.75
	Bucks	1–34	31–64	93.50
Dec. 1,	Wyoming	4–6	65–67	8.25
	Northumberland	3–4	68–69	5.50
Dec. 2,	Juniata	5	70	2.75
	Somerset	1–7	71–77	19.25
Dec. 6,	Columbia	1–2	78–79	5.50
	Clearfield	1–8	80–87	22.00
Dec. 7,	Cambria	1–3	88–90	8.25
	Wyoming	7	91	2.75
	Crawford	1–7	92–98	19.25
	Juniata	6	99	2.75
	Clarion	1	100	2.75
	Elk	1	101	2.75
Dec. 8.	Northumberland	5–14	102–111	27.50
Dec. 9.	Clinton	1	112	2.75
Dec. 12.	Dauphin	5–13	113–121	24.75

"IF YOU are not in khaki by the 20th, I shall cut you dead," wrote a patriotic young Englishwoman to her lover. The militancy of it lost nothing in its translation by a German correspondent of the Cologne Gazette: "If you are not in khaki by the 20th I shall hack you to death (hacke ich dich zum Tode)." —*Springfield Republican.*

STATE NEWS ITEMS

MARRIED

Dr. J. Clyde Markel and Miss Carolyn Owen, both of Pittsburgh, October 18.

Dr. Charles D. Bierer and Miss Gertrude Hankins, both of Uniontown, October 31.

Dr. O. H. Perry Pepper and Miss M. Eulalie Wilcox, both of Philadelphia, December 2.

Dr. Howard D. Geisler and Miss Dorothy David, both of Philadelphia, December 1.

Dr. Russel S. Boles, Wynnewood, and Miss Mary McNeely, Wynnefield, November 29.

Dr. Frank A. Craig, and Miss Florence P. Frismuth, both of Philadelphia, November 2.

Dr. John McCrea Dickson, Gettysburg, and Miss Marion Ball, Mahanoy City, November 1.

Dr. J. Packard Laird, Devon, and Miss Matilda Coleman Page, at Fairfax, Va., November 15.

Dr. Donald Guthrie, Sayre, and Miss Emily Franklin Baker, Caldwell, N. J., in New York City, December 2.

DIED

Dr. Isaac H. Mayer (Jefferson Med. Coll., '69) in Willow Street, November 13, aged 72.

Dr. Moses R. Coates (Western Pennsylvania Medical College, Pittsburgh, '93) in McKeesport, October 20.

Dr. Peter J. McCahey (Jefferson Med. Coll., '85) in Philadelphia, October 22, from heart disease, aged 60.

Dr. George Kempton Reed (Jefferson Med. Coll., '74) in Philadelphia, December 2, from pneumonia, aged 68.

Dr. F. L. Grander (Jefferson Med. Coll., '85) killed himself with a revolver November 4, at his home in Scranton, aged 55.

Dr. William Lee McKibbin (Univ. of Pennsylvania, '69) in Amaranth, October 12, from injuries received from a fall, aged 78.

ITEMS

The Philadelphia Pediatric Society celebrated its twentieth anniversary December 12.

Dr. Louis W. Schwindt, Philadelphia, succeeds the late Dr. Harry W. Weyant as police surgeon.

The Harrisburg Academy of Medicine held its annual banquet at the Harrisburg Club, November 24.

Dr. H. Brooker Mills has been appointed visiting physician to the Philadelphia Hospital for Contagious Diseases.

Dr. T. Hollingsworth Andrews, Philadelphia, has retired from active duty, after fifty-two years in practice.

The Children's Hospital of Philadelphia will receive $25,000 by the will of the late Louis S. Fiske of Bryn Mawr.

The Presbyterian Hospital of Philadelphia will receive $25,000 by the will of the late Mrs. Caroline Augustus Wilson.

Dr. N. E. Silsley, Scottdale, was operated on for intestinal trouble at the Columbia Hospital, Pittsburgh, November 5.

The Woman's Medical College of Pennsylvania, on December 4, began an active campaign to raise an additional endowment fund of $200,000.

The Lawrence County Medical Society at its November meeting voted to increase the fee for regular visits to $2 for day calls and $2.50 for night calls.

Dr. J. B. McAlister, Harrisburg, addressed the graduating class of the Nurses Training School of the J. C. Blair Memorial Hospital at Huntingdon on December 8.

Dr. Charles Lincoln Furbush, Philadelphia, has been appointed special assistant to the American Embassy at Berlin, as medical inspector of prison camps in Germany.

Dr. J. B. Carrell, Hatboro, in a recent address on "The Family and the School," emphasized the importance of having properly qualified individuals on the school board.

Dr. Chevalier Jackson, Pittsburgh, has been elected by the trustees of Jefferson Medical College and Hospital, Philadelphia, to succeed the late Dr. D. Braden Kyle, as laryngologist to the institution.

The Philadelphia Home for Incurables will receive $10,000 by the will of the late T. Morris Wright, and the Pennsylvania, Hahnemann, Jewish, Jefferson and German Hospitals will each receive $5,000.

The Scranton Academy of Medicine has arranged a most excellent program of clinics and meetings for the afternoons and evenings of October 19, November 7 and 23, December 1 and 21, January 8 and 18, February 1 and 15, March 2, 15 and 29, and April 5 and 19. There is a judicious mingling of topics as well as of local men and distinguished physicians from this and other states.

Industrial Accidents in Pennsylvania.—The record of killed and injured in the industries during the first ten months of this year is as follows:

	Killed	Killed and Injured	Daily Average
January	129	13,465	518
February	222	24,475	979
March	239	26,971	999
April	169	18,010	720
May	195	18,379	735
June	182	19,939	767
July	200	21,028	841
August	246	23,817	882
September	245	22,194	888
October	287	21,565	829
Totals	2,114	209,843	820
Monthly av....	211	20,984	

Vaccination Law Upheld.—The compulsory vaccination act of 1895 "must be read into and construed with the act of 1911 (known as the compulsory school law) as a relevant constituent of the school law," Judge Orlady held Nov. 13, 1916, in the Superior Court in sustaining the Quarter Sessions Court in fining William Gillen $2 and costs for refusing to send his two children to school because he objected to their being vaccinated. The fine was imposed under the compulsory school law, which contains a provision that "any pupil prevented from attending school on account of the health or sanitation laws of this commonwealth or by the sanitary regulations of the local board of health directors is hereby relieved from complying with the provisions of this act concerning compulsory attendance during such time as he is thereby prevented from attending school." Judge Orlady ruled that this clause referred "only to temporary or emergent conditions," and could not "refer to such a condition as is urged by this appellant to fix a permanent exemption from such attendance on account of the individual opinion of the parent in regard to his propriety of complying with a health regulation." In conclusion, the judge found that "individual objection to the requirements of the law must give way to the necessity for the protection of public health." The school board was acting in strict conformance with the law, he ruled, in requiring that the Gillen children be vaccinated.

"FAKE ADVERTISING."—The following clipped from a recent number of *N. A. R. D. Journal* shows that the subject of honest advertising is receiving more and more attention and will be of interest to our readers. Would that the American Fair Trade League would give attention to some of the false advertisements in medical journals. It is probable, however, that the number of distinguished contributors and subscribers to these journals would be considered by the courts as giving the advertisers a clean bill of standing.

ANOTHER FAKE ADVERTISER PROSECUTED

A prosecution for disseminating false and misleading statements in an advertisement that will be of interest to merchants and consumers everywhere has been started in Scranton, Pa., by the American Fair Trade League, acting through C. E. LaVigne, a field representative. As a result, I. E. Oppenheim, the head of the Scranton Dry Goods Company, was held under $300 bond to appear before the grand jury of Lackawanna county, at its meeting beginning October 30. Mr. LaVigne at the preliminary hearing before James Moir, alderman for the ninth ward in Scranton, sitting as a magistrate, testified that he read an advertisement in the Scranton *Times* of September 14, offering certain dress goods as "all wool." He bought a sample of the goods and it was analyzed by a reputable firm that is recognized by the United States government and was found to be less than 51 per cent wool. A piece of the goods, the advertisement in question, and a certified copy of the result of the analysis, were submitted in evidence. The defendant made no denial, his attorney contenting himself with abuse of the American Fair Trade League and Mr. LaVigne. At the conclusion of the hearing Alderman Moir said that the evidence submitted was sufficient and he held the defendant to the grand jury. Mr. LaVigne was also held under $100 to appear and prosecute. It is significant, that the league reports that no paper in Scranton made any reference to the arrest of Mr. Oppenheim or to the hearing before Alderman Moir or his action in holding the defendant.

NARCOTIC EVIL IN PHILADELPHIA AND PENNSYLVANIA.—A self-constituted committee of prominent citizens of Philadelphia, with Edward W. Bok as chairman, Dr. John H. W. Rhein as secretary and Dr. Horatio C. Wood, Jr., as a member, in 1915 formed themselves into a committee to investigate the extent of the use of narcotic drugs, opium, morphin and heroin, in Philadelphia and Pennsylvania, to ascertain what help could be given in the cure of the victims of the drug habit and to recommend needed legislation to assist the federal government in its efforts under the Harrison Narcotic Law to restrict the sale and use of narcotic drugs. In their report, printed in pamphlet form and ready for distribution, they set forth many interesting facts regarding the investigation, make some recommendations and give a draft of a proposed bill to regulate the use and sale of narcotic drugs in the state. They say the number of drug users in the state is large, but do not attempt to fix it exactly. To get definite information on certain phases of the evil a group of eighty-six persons addicted to the use of one or more narcotic drugs was investigated. Of these, fifty-eight were found to have formed the habit through association, in the tenderloin, with fellow workmen, with men met in pool rooms, saloons, etc., some through mere curiosity. Two said they had formed the habit during sickness after operations, six through physicians' prescriptions, one to ward off tuberculosis. Of the group of eighty-six it was found that sixty-four had contracted the habit between the ages of 18 and 30; the loss of time from work caused by the habit varied from six months to two years in thirty-nine cases. The drug was obtained in many instances from peddlers on the streets in the tenderloin district, in pool rooms and other places where men and boys congregate. Some obtained it by mail from distant places. It is shown how the so-called "reduction" method of treatment is used with the assistance of physicians to evade the law. Inquiry directed to institutions throughout the state showed that the number of persons treated for drug addiction after the enactment of the Harrison Narcotic Law greatly increased. It is said that nineteen states have no provision for the treatment of drug users except in insane hospitals, but in a number, state and county hospitals care for them, as well as many private and charity general hospitals, and five states have farm colonies for inebriates which admit drug users. Two cities have municipal farms where they are cared for. Pennsylvania commits them under its "Habit Act" to the state hospitals for the insane. The committee recommends that the state make provision for adequate treatment and after-care of drug inebriates, and that the legislature by law make possible a more strict control of the manufacture and sale of opium, coca and their derivatives and cover those features of the misuse of drugs not covered by the federal law. These recommendations are embodied in the draft of the law appended to the report. Copies of the report may be obtained from the secretary, Dr. J. H. W. Rhein, 1732 Pine Street, Philadelphia.

GENERAL NEWS ITEMS

BUY RED CROSS CHRISTMAS SEALS.—

THE CENTRAL STATES ORTHOPEDIC CLUB will hold the 1916 meeting in Cleveland on December 27 and Cincinnati on December 28. Dr. Emil Geist of Minneapolis is president; Dr. H. W. Orr of Lincoln, Neb., is secretary.

THE HOSPITAL FOR DEFORMITIES AND JOINT DISEASES, New York, will have a new building of twelve stories with a capacity of 400 beds, and a special ward for infantile paralysis patients, the gift of Henry Kaufman, Pittsburgh. The building will cost $1,000,000.

JUDGE "BEN" LINDSEY was reelected juvenile judge at the recent election in Denver, running ahead of his county ticket and winning by some 10,000 votes.

The Philadelphia *Public Ledger* remarked that "the vote for Lindsey is the evidence of the ascendency of good citizenship in Denver."

Martin I. Wilbert, Ph.M., Phar.D., Washington, D. C., Assistant in the Division of Pharmacology, Hygienic Laboratory, U. S. Public Health Service, and member of the Council on Pharmacy and Chemistry of the A. M. A., died in the German Hospital in Philadelphia, November 25.

Council on Pharmacy and Chemistry.—During November the following articles have been accepted for inclusion with New and Nonofficial Remedies: Mercurialized serum-Mulford, No. 5-A and 5-B and No. 6-A and 6-B, H. K. Mulford Company; Swan's bacillus bulgaricus, Swan-Myers Company.

National Department of Health Urged.—The Washington Chamber of Commerce adopted a resolution, November 13, calling for the establishment of a national department of health. An effort will be made to interest the president and members of Congress in the matter during the coming session of Congress.

The American Society for the Control of Cancer, organized in 1913, in its first report to the Congress of American Physicians and Surgeons, outlines the scope of its work in conducting an educational propaganda for the prevention and cure of cancer. The society is distributing its circulars to medical societies and public health agencies throughout the country. It is also acting as a clearing house for the collection of statistical data from national mortality and operative reports. The central office is situated at 25 West Forty-Fifth Street.

Notification Required of Medical Interruption of Pregnancy.—The authorities in Prussia have recently stated the principles that should govern the physician in the interruption of a pregnancy. No grounds except medical ones should be considered—only serious and unavoidable danger, from an already existing disease, which cannot be averted by any other means. The physician is not justified in arresting the pregnancy from any social or race-hygiene reasons; any such action conflicts with the criminal code. A consultation of several physicians is advisable, and official notification is required.

Court's Decisions on Public Health.—Reprint No. 342 of the *U. S. Public Health Reports* contains the judicial opinions which were published in the *Public Health Reports* between May 30, 1913, and Dec. 31, 1915. It is divided into two parts: digest of judicial opinions, arranged in topical outline, under suitable headings, and the reports of the cases or excerpts therefrom. The digest covers public health in so far as this subject has been considered by the courts. Opinions relating to house plumbing, noises and offensive odors have not been included. This reprint will be of value to those interested in public health.

Internship Required.—At its meeting, held October 11, the Michigan State Board of Registration in Medicine adopted a resolution requiring all candidates for examination who matriculated in recognized medical colleges subsequent to Jan. 1, 1917, to have an additional qualification of one year's internship in a recognized hospital before being admitted to the examination for licensure. This is the fifth state to require a year's internship. The requirement became effective for all graduates in Pennsylvania in 1914, in New Jersey in 1916, and will become effective in Rhode Island in 1917, and North Dakota in 1918. In Michigan it will apply to graduates in 1921 and thereafter.

Aid to Belgian Physicians and Surgeons.—Report of the treasurer of the Committee of American Physicians for the Aid of the Belgian Profession for the quarter ending Nov. 30, 1916:

CONTRIBUTIONS

Previously reported	$7,946.86
Dr. Edward E. Mayer, Pittsburgh	10.00
Dr. W. C. Cahall (3rd contribution), Philadelphia	1.40
Total	$7,958.26
Total disbursements	7,310.04
Balance	$ 648.22

F. F. Simpson, M.D., Treasurer.
7048 Jenkins Arcade Bldg., Pittsburgh.

Doctors to Tour South America.—The U. S. Government will send a number of distinguished medical men to South America next summer to invite the doctors of the Latin-American republics into a closer communion with physicians of the United States. The visiting Americans will tour the entire hemisphere, from Venezuela to Argentine and Chili, and will receive suggestions as to the best manner in which this bond of union may be cemented. The representatives chosen up to date include Dr. Edward Martin, Philadelphia; Dr. Charles H. and Dr. William J. Mayo of Rochester, Minn.; Dr. Franklin H. Martin and Dr. Albert J. Ochsner of Chicago, and Dr. Franklin F. Simpson of Pittsburgh. They will formulate plans for their journey within a few weeks and report to the federal government.

The Medical Society of Virginia held its forty-seventh annual meeting at Norfolk, October 24-27. Dr. George A. Stover, South Boston, was elected president and Dr. Paulus A. Irving, Farmville, secretary. The following is an excerpt from the address of the president, Dr. J. A. White, Richmond: Cooperation is the important factor in all kinds of work today—cooperation between the American Medical Association and the state societies; cooperation between the state societies and county societies; cooperation between the county societies and the individual members. With such cooperation, what immense influence the medical profession could wield in legislation! What is it the profession could not get in the way of passing laws to advance medical education and to safeguard the public health by state legislatures, and by congress, if they worked as a unit to this end in every county, city and state!

National Board of Medical Examiners.—This board, which was founded in 1915 by the late Dr. William L. Rodman of Philadelphia, held its first examination in Washington, D. C., October 16 to 21. There were thirty-two applicants from seventeen states, representing twenty-four medical schools, and of these sixteen were accepted as having the necessary preliminary and medical qualifications. Ten of these candidates took the examination, and the following passed: Dr. Harry Sidney Newcomer, Johns Hopkins University; Dr. William White Southard, Johns Hopkins University; Dr. Orlow Chapin Snyder, University of Michigan; Dr. Thomas Arthur Johnson, Rush Medical College; Dr. Hjorleifur T. Kristjanson, Rush Medical College. The second examination will be in Washington in June, 1917. Further information may be had by applying to the secretary of the board, Dr. J. S. Rodman, 2106 Walnut Street, Philadelphia.

The American Medical Editors Association held its annual meeting in New York, October 25 and 26. A most interesting program was presented and the symposium to the "Doctor and the Law," with special reference to anti-narcotic legislation, presented on Wednesday afternoon, created widespread interest and a large attendance from the profession, the judiciary, the Internal Revenue Department and drug manufacturers. The officers elected for 1916-1917 are: president, Dr. George M. Piersol, Philadelphia; vice presidents, Drs. George W. Kosmak, New York, and Robert M. Green, Boston; secretary-treasurer, Dr. J. MacDonald, Jr., New York; executive committee, Drs. C. F. Taylor, Philadelphia, A. S. Burdick, Chicago, and D. S. Fairchild, Clinton, Iowa. Dr. H. Edwin Lewis, New York, is chairman of the publication committee and editor of the *Journal of the American Medical Editors Association.* The next annual meeting will be held in New York, with headquarters at McAlpin Hotel, June 4 and 5, 1917.

Detroit Physicians for Prohibition.—The Wayne County (Mich.) Medical Society at midnight, October 23, after the hottest parliamentary scrap in its history, passed the following resolution by a vote of 134 to 31: "Whereas, the Wayne County Medical Society, as a result of the technical training and experience of its members, has intimate, accurate and scientific knowledge of the deleterious effects of the moderate and the immoderate use of beverages containing alcohol on the normal physiological functions so necessary to the prevention and cure of disease and realizes that the deleterious effect of alcoholic beverages is a direct cause of many diseased processes, is a definite cause of lack of resistance to diseased processes from other causes, and that the elimination or decrease of the use of alcoholic beverages would be of the greatest service in preventing and curing diseases, therefore be it resolved, that the Wayne County Medical Society favor and urge state-wide prohibition of the manufacture and sale of alcoholic beverages."

Starch and Table Salt Sold as Neosalvarsan.—The recent indictment by the federal grand jury in Newark, N. J., of "Dr." Jean F. Strandgaard of Toronto, Canada, and George F. Hardacre of Toronto, and a steward on the steamship "United States," has revealed to Chief Inspector E. R. Norwood of the Customs Service in New York, what he believes to be a widespread conspiracy to defraud the government out of customs revenue by smuggling salvarsan and neosalvarsan into the United States. These men also had in their possession a large quantity of spurious neosalvarsan. On analysis by the government experts, the contents proved to be starch in the majority of the ampules and stained table salt in the others. A further investigation showed that during July, 1916, Strandgaard had 15,000 ampules made in Jersey City, which on his instructions were filled by the glass blower with either starch or salt. During August and September, and as recently as the time Strandgaard was arrested in New York, physicians and drug stores all over the Middle West and the East were approached by women trying to sell the frauds made for Strandgaard. These spurious products were put up in imitation of either the German or particularly the English package, as marketed by the German manufacturers in England before the war, in square pasteboard cartons. They did not appear in round aluminum packages like the American package.

New Head for Frank S. Betz Company.—Mr. Louis R. Curtis of Chicago has been elected president of this well-known instrument house. Mr. Curtis was born in Philadelphia in 1865. He obtained his college training at Stevens, graduating as mechanical engineer. In 1889 he became assistant superintendent of the New York Hospital. He attended medical college, not with the idea of practicing but better to fit himself for hospital work. He then went to the General Hospital of Elizabeth, N. J., staying there for about one and one-half years. He then went to St. Luke's Hospital, Chicago, as superintendent and has been its dominating figure, both as superintendent and secretary, until recently, and is now vice president in charge of the operation of the institution. During the last years Mr. Curtis has also been prominent as a consulting engineer, especially among hospitals, and has introduced many advanced and successful ideas in hospital construction and organization. His wide experience among hospitals and medical men, coupled with his technical training, makes him peculiarly well fitted for his new position. Mr. Frank S. Betz, under whose control the concern bearing his name assumed its present proportions, will continue with the company as chairman of the board of directors and give the organization the benefits of his long experience and training. His many and diversified interests are given as reasons for his retiring as active head of the company.

"Chicago vs. Philadelphia in Great Medical Endowment."—Under this heading Dr. John B. Roberts contributed to the Philadelphia *Public Ledger* of November 24, a letter, of which the following is a part:

The *Public Ledger* last week announced that the University of Chicago had secured several millions of dollars to establish a great university medical school for undergraduate and postgraduate teaching and research work in medicine.

The financial scheme of the new medical school, of the University of Chicago, which consists of an undergraduate medical school, a graduate medical school and an institute or foundation for medical research, is understood from reliable sources to have been worked out as follows:

The university will raise	$3,300,000
The General Education Board will give	1,000,000
The Rockefeller Foundation for Organizing Medical Instruction will give	1,000,000
The university will give property for site valued at	500,000
There has been already pledged for the university share	1,200,000
These amounts will be added to the present endowment (first two-year medical courses)	2,000,000
New clinical hospital buildings for the undergraduate medical school are to cost	1,000,000
The endowment for this clinical hospital is	1,500,000
The endowment for salaries is	1,500,000
The postgraduate department will consist of the Rush Medical School, the Presbyterian Hospital and the Central Free Dispensary. A laboratory building for the post-graduate department will be erected at a cost of	300,000
The endowment fund for the department of postgraduate instruction will be	1,000,000

The clinical hospital spoken of above will contain 250 beds for the undergraduate department. The Presbyterian Hospital connected with the postgraduate school has 440 beds.

In addition to the Presbyterian Hospital there will be affiliated with the University of Chicago medical schools probably the Children's Memorial Hospital, the Durand Hospital, the Home for Crippled Children, the St. Joseph's Hospital and the Sprague Memorial

Institute. The governing body will be the board of trustees of the University of Chicago. Five million two hundred thousand dollars of the great sum required has been provided for, but $2,100,000 will have to be raised. This money will not be required immediately, but doubtless will be obtained by the active efforts of those interested in the project and the liberality so often shown by the citizens of Chicago.

The total amount required for the projects mentioned is $5,300,000, in addition to the $2,000,000 already employed by the university as the endowment of its first two years' medical course, carried on at the present time on the university campus.

The new four-year undergraduate medical school will be conducted in the southern part of Chicago, where the other university departments are situated. The postgraduate medical school and the fifth, or intern, medical year are to be established at the present site of the Rush Medical College and the adjoining Presbyterian Hospital, and in the vicinity of the other hospitals which will be affiliated with the university.

The business men of Philadelphia, the college trustees and the teachers of our medical schools surely cannot be willing to let the present opportunity slip. Philadelphia's medical interests are so connected with its educational reputation that all must see that restoring the prestige of the city to its former position in medicine adds to the prosperity of all lines of business. Our medical schools must be combined, their work correlated and the combination given the financial support of the men who have control of great fortunes.

If Chicago needed approximately $7,000,000, Philadelphia will need at least $8,000,000. More than that, Philadelphia must increase its civic pride, its devotion to educational advance, and arouse itself from its complacent satisfaction in its medical past. If it hopes to attain a position relatively near to that which Chicago has within its grasp it must wake up and show a different spirit of progress and attain a sinking of personal fancies for the common good. Every citizen must feel that his money, brains and vitality are back of the movement to create a medical school great enough to attract pupils from every quarter.

Chicago has shown its wisdom in placing its undergraduate department on the university campus, with hospital facilities at that point to make the clinical teaching of undergraduates sufficiently broad. It will put its school for postgraduate and graduate study and research in a different section of the city, evidently because it knows that modern medical teaching requires large numbers of ambulatory patients in its dispensaries and that its hospital bed service must be close to the congested habitations of the poor. Medical men know that it is futile to try to teach undergraduate students, pupil physicians and graduate research workers in the same hospital wards and dispensaries.

BULLETIN EXCERPTS

Medical Monthly, Bucks

Presentation.—In making the presentation of a beautiful gold watch and chain from the Bucks County Medical Society to Dr. Anthony F. Myers, who has been twenty-three years the faithful secretary of this society, Dr. L. S. Walton, said:

Brother Secretary, I have a few words to say to you at this time: You have served this society faithfully for many years, and the work has never seemed to be irksome to you. If there is any one thing I envy you it is your popularity in the medical profession, not only in this society, but throughout this great medical state. There is a reason for this I believe. It is due to your kind and genial manner. You are ever on the alert to extend the helping and glad hand to a weaker brother. I assure you you have unconsciously done many things that have been an inspiration to me, and what applies to me applies no doubt to our medical family. There are some things in life more valuable than money. If you should not be remembered by the money you leave, I am sure it will be by the many good deeds you have done.

"Tis better to give a cheap boquet
To a living friend this very day,
Than a bushel of roses, white and red,
To lay on his coffin when he is dead."

Now, Dr. Myers, it is a great pleasure for me, acting for the Bucks County Medical Society, to present to you this watch and chain. This is only a small thing to show you the very high regard the members of this society have for you, and by this we assure you we have appreciated all the efforts you have made for us and the profession at large.

Dr. George M. Grim said: A watch, in itself, would represent but that much junk, if it did not stand for several good qualities as found in our secretary or, in fact, any doctor. The first of these is: Being on time, promptness, reliability, and accurateness, represent qualities in every doctor as well as in this watch that stand for service. It is our service to humanity that makes our calling noble. A good watch and a good doctor are always on time, and this soon inspires reliability. Myers is always on time, the old reliable. But with all these good qualities, we can find but this: Myers never needs "winding up." The Almighty wound him up when he started him off, and he's been running ever since.

Bulletin, Lancaster

What a Vast Difference we realize in our professional consultations with our colleagues. We find that some manifest a beautiful spirit of cordiality and mutual interest, while others, on the contrary, are selfish, arrogant and domineering. It does not require much perceptive power to size up those whom we call to our aid, for their counsel and support. No wonder that the young physician often hesitates to call in an older physician for counsel. A true gentleman, though he be ripe in experience, will, always, sacredly guard the welfare and interests of his younger colleague and exert every possible effort to make the consultation pleasant and profitable.

Bulletin, Westmoreland

The County Seat Doctors.—In one of the last bulletins edited by the late secretary, Dr. John B. Donaldson of Washington County, appeared the following: "In almost every county in the state the society's meetings are held at the county seat, and on the county seat physicians' heads rest the responsibility of whether the society is a good one or a continuous frost. Too frequently the county seaters forget it altogether, or perhaps they run in late and chase off home before the meeting is over, and the poor devils who ride miles to be there early and stay late, are left to wonder why they came, if these gentlemen cannot afford the time." Here is a straight poke, right under the short ribs, but you deserve it.

BOOKS RECEIVED

Books received are acknowledged in this column, and such acknowledgement must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

Mechanisms of Character Formation. An Introduction to Psychoanalysis. By William A. White, M.D. New York: The Macmillan Company, 1916. Price, $1.75.

The Practical Medicine Series. Comprising ten volumes on the year's progress in medicine and surgery, under the general editorial charge of Charles L. Mix, A.M., M.D., Professor of Physical Diagnosis in the Northwestern University Medical School. Volume VI, General Medicine. Edited by Frank Billings, M.S., M.D., Head of the Medical Department and Dean of the Faculty of Rush Medical College, Chicago; assisted by Burrell O. Raulston, A.B., M.D., Resident Pathologist, Presbyterian Hospital. Series, 1916. Chicago: The Year Book Publishers, 327 S. LaSalle Street. Price, $1.50.

The Medical Clinics of Chicago. Volume II, Number 2 (September, 1916), Octavo 196 pages, 22 illustrations. Philadelphia and London: W. B. Saunders Company, 1916. Price per year, Paper, $8.00; Cloth, $12.00.

BOOK REVIEWS

THE PHYSICIAN'S VISITING LIST FOR 1917. Sixty-sixth year of its publication. Philadelphia: P. Blakiston's Son and Company, 1012 Walnut Street. Price, $1.25.

The Physician's Visiting List for 1917 includes an entirely new dose list prepared in accordance with the new United States Pharmacopeia. This will prove an exceedingly useful feature, as there were many changes, improvements in standards, new drugs and other material inserted. This list gives the dose in both the apothecary and metric systems and the solubility and important incompatibilities when called for. Several other new tables have been inserted, such as isolation periods in infectious diseases, table of mortality, etc. L. F. P.

PHARMACOLOGY AND THERAPEUTICS. For Students and Practitioners of Medicine. By Horatio C. Wood, Jr., M.D., Professor of Pharmacology and Therapeutics in the University of Pennsylvania; Second Vice Chairman of the Committee of Revision of the U. S. Pharmacopeia. Second Edition. Philadelphia: J. B. Lippincott Company. Price, $4.00.

This is a timely revision of an important book by a well-known author. While the general plan of the previous edition has been adhered to, extensive alterations have been required, not only to meet the changes in the Pharmacopeia but also to keep apace with the rapid advances in the sciences of pharmacology. The articles on verona, digitalis, pituitary, atoxyl and salvarsan have been almost completely rewritten and important alterations made in those on potassium, caffein, dionin, ergot, ipecacuanha, magnesium, calcium, and hexamethylenamin. Some twenty substances not considered in the previous edition have received more or less extensive notice in the present one; among these may be mentioned especially, agaricin, bromural, apiol, cotarnin, chrysarobin, picrotoxin, homatropin, apidosperma, and thiosinamin. Besides these there have been a number of minor interpolations scattered throughout the work. Following the innovation of the U. S. Pharmacopeia the British term "mil" is used for the thousandth part of a liter in place of "C.c." L. F. P.

AMERICAN PUBLIC HEALTH PROTECTION. By Henry Bixby Hemenway, A.M., M.D., Author of The Legal Principles of Public Health Administration. Indianapolis: The Bobbs-Merrill Company. Price, $1.25 net.

This book sets forth in compact form the history of the development of care of public health in this country, of the growth of knowledge, of the battle with indifference, graft and blindness. Then the work of national health agencies, and especially that of the medical department of the Army and the Bureau of Animal Industry, is discussed. Dr. Hemenway compares medical and sanitary education in the United States in a novel and interesting manner. He comments on the changed social and economic conditions and the advancement of science in their bearing on sanitation. The medical inspection of schools, the organization of health departments, the preparation of health officers, are other phases of the subject which are handled in detail. L. F. P.

SOCIETIES

PHILADELPHIA LARYNGOLOGICAL SOCIETY

Meeting of Nov. 7, 1916

Individual Paper Ear Protector. Dr. Sidney L. Olsho showed an individual paper ear protector for office use while treating a suppurating ear. It is a circular white filter paper, 6 inches in diameter, with a central oval opening about 1 by 2½ inches in size, large enough to permit the ear to pass through. One of these sterile papers is slipped over the ear. It does not readily fall off. The auricle and canal are exposed, surrounded by a clean, hair-free surface. The fingers of the attendant are kept free from this source of contamination and annoyance. The protectors have been found particularly useful on women patients who dress the hair low over the ears. All of the strands are behind the paper. It is better to have the central opening a hemi-ovoid; viz., a straight line anteriorly and an ovoid curve fitting the posterior surface of the ear.

End Results of Two Radical Killian Operations. Dr. Ross H. Skillern presented a colored girl, aged 20, who first reported Feb. 1, 1916 (Pa. Med. Jour., March, 1916, p. 467), in whom had been successfully imbedded a solid block of paraffin, weighing about 2 gm., for the correction of a deformity following a frontal sinus operation. The results was all that could be desired at that time. Since then a hernia developed at the operative site. A small sinus formed. The sinus was opened and the entire block of paraffin was removed. The space originally occupied by the paraffin was found to be occupied by healthy connective tissue. The wound was again closed and again it healed. The deformity at the present time is not great. Small injections of paraffin are being given.

Dr. Skillern showed also a case of frontal sinusitis following influenza, the patient being a male, aged 25. The history revealed that, shortly after the grip, the left eye began to swell. Something broke inside the nose. Several minor operations were performed in the nose. There were a number of recurrences treated by poultices and incisions. Patient came to hospital with a discharging fistula at the inner canthus. A Killian operation was performed Oct. 24, 1916, and a large sequestrum was removed. There was pus on both sides. The left inferior wall and the ethmoidal cells were removed and free drainage through the nose was established. The patient was presented with all of the external wound healed, a little deformity and only a slight diplopia due to imperfect action of the pulley of the superior oblique.

Demonstration of Mosher's Esophagoscope. Dr. Robert F. Ridpath demonstrated esophagoscopy with Mosher's esophagoscope for which the following advantages were claimed: The oval shape and the matrix make for an easier passage. The light being at the distal end, gives better illumination. As the esophagoscope is ballooned by means of a bulb, a larger field is exposed to view at one time and the scope descends readily as the ballooning is performed.

Subglottic Papilloma. Dr. Matthew Ersner showed a patient with a subglottic papilloma of the larynx which was removed by suspension laryngoscopy with the Lynch apparatus.

Case of Objective Tinnitus Aurium. Dr. George M. Coates showed a case of entotic noise in a man aged 35. The patient had been under observation four to five years. He is in good general health but of a neurotic temperament. He had an otorrhea on the right side for years. The membrane is absent and the ear is now dry. There is a nonsuppurative, middle-ear catarrh on the left side. A clicking like that of a large watch, is present in the right ear. It may be heard at a distance of 8 to 10 feet from the patient. It is not synchronous with the heart. The patient can stop it voluntarily but cannot keep it stopped. He is also able to start it when it is stopped. Entotic noises are of two kinds, ticking and murmurs. The latter are vascular, e. g., aneurysm of internal carotid. Some are said to be due to a spasm of the tensor tympani muscle.

Dr. Lindauer mentioned one of his cases, a neurotic woman. A loud murmur, synchronous with a heart murmur, was heard some distance from the patient. The murmur disappeared following a rest cure and bromids.

Papilloma of the Uvula. Dr. Arthur J. Wagers presented a male adult patient with a smooth pedunculated papilloma of the uvula. The growth is about $\frac{1}{2}$ inch long and about $\frac{1}{8}$ inch in diameter. It originates on the right side just a little posteriorly.

Case of "Telephone Ear." Dr. James A. Babbitt gave a brief preliminary report of a case of "telephone ear" in a telephone operator. The symptoms are a beating pain in both ears and pain in back of the ears radiating to the occiput. The pain intermits but the patient is always "conscious of her ears."

Sidney L. Olsho, Reporter.

ROENTGEN RAY SOCIETY OF CENTRAL PENNSYLVANIA

The fall meeting of the Roentgen Ray Society of Central Pennsylvania was held at the Clearfield Hospital, Clearfield, Oct. 21, 1916. A short business meeting preceded the scientific meeting. Dr. Russell H. Boggs of Pittsburgh, Dr. A. F. Hardt of Williamsport and Dr. J. C. McAllister of Ridgway were elected members of the society, making a total of eleven members. About forty physicians attended the scientific meeting and very interesting and instructive papers were read by Dr. Boggs of Pittsburgh, Dr. Waterworth of Clearfield, Dr. Stewart of Johnstown and Dr. Bliss of Altoona. The discussion which followed the reading of these papers brought out many valuable points. Specially designed light boxes were provided for the plate exhibit.

The next meeting will be held at Johnstown, in May, 1917; the date will be announced later. The desire of this society is to get all physicians in Pennsylvania, especially this section of the state, who are actively engaged in Roentgen ray work to become members. Application blanks for membership and information will be furnished by Dr. W. E. Reiley, Clearfield, secretary. The society expects to publish a bulletin in December or January and copies will be sent to all physicians in this section of the state.

G. E. Alleman, Reporter.

WILLS HOSPITAL OPHTHALMIC SOCIETY

Meeting of Oct. 2, 1916

Report of Cases Illustrating Ocular Complications of Anterior Poliomyelitis. Drs. William Campbell Posey and Walter C. Swindells: This report included one case of blindness from atrophy of both optic nerves, with paralysis of left abducens, occurring in a boy 7 years old. Eye symptoms appeared three weeks after primary attack of fever, although an afebrile stage of two weeks supervened between the two. There was also paralysis of the left arm and leg. The attack was attended with pain and rigidity at the back of the neck. It was thought the atrophic changes in the nerve may have been induced by the direct action of toxins generated by the disease. Implication of the optic nerve in anterior poliomyelitis is exceedingly rare; Dr. Posey had been able to find in the literature but one cited by Wickman and another by Tedeschi.

The authors also reported three cases of paralysis of ocular muscles observed in anterior poliomyelitis, one of paralysis of the left sixth, associated with a similar condition of the seventh nerves. The palsies in this case occurred in a child exposed to infection by his father, a physician who was attending another case. Paralysis appeared about a month after initial illness. In the second case, a double ptosis followed directly on an illness of one week's duration. In the third there was complete external ophthalmoplegia, the paralysis coming on the second day after the illness. Both of these occurred in Philadelphia during the recent epidemic.

Dr. Burton Chance, in discussing, said that he has had numerous cases exhibiting sequels of the disease, and his study of the present epidemic very much reminded him of many features connected with the 1899 epidemic of cerebrospinal meningitis, which he studied in the cases committed to the care of the Municipal Hospital. He does not regard, of course, the two diseases to be at all similar or related, as each is caused by a separate organism, yet he was struck by the particular statement of Dr. Weisenburg that in this present epidemic the affection has not been limited to the myelin, but is actually a meningomyelitis. It therefore is not to be wondered at that he noticed motor and sensory changes in the ocular apparatus. It is to be deeply regretted that ophthalmological studies have not been made at the Municipal Hospital during the present epidemic, because in the cases in which meningitis has developed, sooner or later serious and progressive changes, it should be feared, may appear. Therefore, as soon as possible after they are discharged by the hospital, the patients should be sent to receive ophthalmological study and treatment.

Dr. T. H. Weisenburg stated that he had studied many similar cases in the Municipal Hospital. He was not as yet prepared to state the exact number he had seen in which the ocular muscles were involved but there must have been fully twenty-five or perhaps more. The ocular complications were of different kinds. He had only seen one in which there was blindness. In this case there was also complete ophthalmoplegia. Unilateral third nerve paralysis he had seen only once, bilateral third nerve paralysis possibly three or four times. Paralysis of associated ocular movement was found in a number of instances either to one or both sides. Sixth nerve paralysis was the most common ocular complication. In one case it was seen alone, in two or three cases bilaterally, but in the majority of instances it was associated with seventh nerve paralysis. Most textbooks discussing infantile paralysis state that seventh nerve paralysis is very common and that it occurs alone. This has not been Dr. Weisenburg's experience, for in the majority of instances he found an associated sixth nerve palsy and in some instances fifth nerve palsy. Fourth nerve palsies were not found alone, but in association with the third cranial nerve.

In only two or three instances were the ocular cranial nerves involved alone, for in the majority of cases there is an associated paralysis in the limbs and chest and abdomen. It can be taken for granted that whenever ocular paralysis occurs the infection has been very great and the paralysis is of considerable extent.

Prognosis of course varies and depends on extent of ocular involvement. In sixth nerve palsies when alone or with seventh nerve, there is generally a return to power in two or three weeks or longer; third nerve paralysis and associated ocular paralysis usually persist longer than paralysis of the other cranial nerves. The probabilities are that most of the cranial nerve paralysis will ultimately disappear, although this is by no means certain. It was Dr. Weisenburg's impression that this epidemic, as judged by the previous epidemics studied in 1910 and 1913, was of greater severity and the extent of the paralysis much greater.

Dr. Risley said he regretted that ophthalmoscopic study of the fundus oculi had not been made in the cases reported. In former epidemics he had seen two instances of optic atrophy with nearly complete blindness following what had been reported as poliomyelitis, and he knew of one child during the present epidemic which had been returned to its home paralyzed in the lower extremities and said to be blind, only mere perception of light having been retained when lying on its cot out on the lawn in bright daylight.

A Case of Bilateral Intra-Ocular Foreign Body. Dr. William Zentmayer: The patient, a girl, 6 years of age, two weeks before admission had been injured by an exploding dynamite cartridge. She was brought to the hospital because of loss of vision in the left eye. No injury to the right eye was suspected. The skin in the peri-orbital region showed numerous small depressed scars similar to those seen after chickenpox. In the left eye the lens was partially opaque and the vitreous was filled with a dark mass in which there appeared to be a foreign body enmeshed. In the right eye there was a very small macule in the cornea at its lower outer margin. The lens was clear. In the vitreous there was a shining apparently metallic oblong foreign body about one half the diameter of the disk in length and the diameter of a main trunk of the central vessel in width. The anterior pole was pointed to the temporal side. It was located in the horizontal meridian and was best seen with +4 D. In a line with the foreign body there was a small irregular whitish lesion in the retina. The radiograph showed on the left side numerous small foreign bodies scattered through the orbit and eye; on the right side there were two shadows. No response was obtained by application of the magnet to the sclera.

Dr. Zentmayer asked for an opinion as to proper treatment. He did not feel justified in attempting to remove the foreign body with forceps through a scleral wound as the eye was in practically a normal condition aside from the presence of the foreign body. He thought the case should be watched and on first appearance of irritation or synchysis an attempt at extraction should be made.

Dr. Risley said that in his opinion if the metallic fragment hanging freely in the vitreous were not copper or brass, more injury was to be expected from attempts at removal than from the undisturbed retained body. He was glad to know that this was the opinion entertained by Dr. Zentmayer and by Dr. Sweet. He had had the opportunity to see Dr. Sweet's patient and was glad to hear from the report just given that the conclusion to do nothing but keep the case under observation had shown the wisdom of such course. He had seen many examples where foreign bodies in the vitreous chamber and in the lens had remained innocuous for many years.

Herpes Zoster Ophthalmicus. Dr. Burton Chance exhibited a man who had recently recovered from the active symptoms of herpes zoster ophthalmicus. In his experience this case presented the widest involvement in area. The dermal lesions extended from lower orbital margin on left side involving the lids, the lacrimal region of the nose, straight up over the forehead back to the interparietal line and over on to the temperozygomatic region. There was intense edema of the lids on the unaffected side. The ala of the nose was not affected. The conjunctiva was edematous from the beginning, and an efflorescence at the inner and outer margins of the limbus occurred by the end of the tenth day, and later a localized cloudiness of the cornea developed. There was moderate iritis. There were no pareses of the extra-ocular muscles. The case has progressed favorably; the deep, rut-like scars on the forehead are becoming shallower, yet the man cannot wear his hat because of the excruciating anesthesia dolorosa, and, so far, his quite thick head of hair has not been affected. A somewhat dense opacity in the interstitial lamina can be made out by means of the corneal magnifier. The medical treatment consisted chiefly of the use of hot magnesium sulphate stupes and the internal administration of sodium salicylate. Just before the vesicles ruptures, tincture of iodin was applied over the forehead and into the scalp.

Harold W. How, Secretary.

COUNTY SOCIETY REPORTS

BUCKS—NOVEMBER

The annual meeting of the Bucks County Society was held at the Fountain House, Doylestown, November 8, with Dr. William J. Wilkinson in the chair. The annual reports were presented and new officers elected for the ensuing year. Dr. Levi S. Walton, in behalf of the members, presented a handsome gold watch and chain to Dr. Anthony F. Myers, as an emblem of esteem for his twenty-three years of faithful service as secretary.

Dr. Alfred E. Fretz lectured on "Arteriosclerosis." The trend of the thoughts were, briefly, that in this age of extreme high tension, when every individual is going full speed ahead with throttle wide open, without thought or desire to slow down, is it any wonder that sooner or later this remarkable human machine will bear decided and unmistakable evidence of wear and tear? The most carefully constructed piece of machinery would not long withstand the use and abuse to which this most wonderful organism is subjected.

The question naturally arises, "What is old age?" Is it estimated by years, months and days? No, time is nothing. The trite saying that "a man is as old as his arteries" is as true today as ever and one man may be as old at 30 as another at 70. His age, therefore, depends almost entirely on the condition of the blood-vessel walls. Are they elastic and do they readily yield to the regular flow and ebb of the blood stream, or have they lost to a degree their pliability, thereby throwing an additional burden on the heart to keep up a constant supply of pure oxygenated blood at the periphery? If they have lost their elasticity, whether at 30 or at 70, what has caused this condition? It is rather from abuse than use at either age.

Nature has endowed us with the power of replacing cells worn out by ordinary wear and tear with new ones, and were it possible for a man to go through life in an absolutely correct manner, without making any error in diet, amount of exercise, rest, etc., barring possibility of infection, there is no reason why the number of that man's days should not be unlimited. Is old age, therefore, physiologic or pathologic? If it means arteriosclerosis, it is just as pathologic as a gastric cancer which has resulted from dietary abuses. If improper living is largely the cause of this serious ailment, it is highly important that we familiarize ourselves with the earliest symptoms of this condition, for it is at this stage of the disease that our efforts are most valuable and the process can frequently be arrested.

The symptoms will be those of a troubled circulation inasmuch as the arteries are less elastic than normal and the contractility of the muscular coat is lessened. The course of the blood through the vessels will not be perfect; the symptoms will be those of hypertension. In the intima and media of the vessels, the irritating effect of some toxin has caused an increase in connective tissue formation. This soon overcomes to a degree the elasticity of the wall of the vessel, at once increasing, however slightly, the resistance to the flow of the blood and the pressure rises accordingly. Later, owing to the natural characteristic of connective tissue to contract, the lumina of the terminal arteries becomes smaller and smaller, the resistance becomes greater and greater, the heart hypertrophies to overcome the resistance, and the blood pressure rises higher and higher. As long as the heart remains competent, there are few symptoms, until this balance is disturbed.

Among the earliest symptoms, due to this disturbed circulation, will be fatigue on slight exertion, dizziness, headache, flushing of face, nervousness, epistaxis, slight edema of legs without disturbance of heart or kidneys, and increased blood pressure. Business cares weigh heavily and work is over-laborious. The patient is restless at night and irritable in the daytime. At this point he may suddenly break down and physical examination may already reveal cardiac hypertrophy, albumin and casts in the urine, and a blood pressure of 170 to 200. A blood pressure of over 170 and an accentuated aortic second sound at once suggest interstitial nephritis. Frequently the primary cardiac hypertrophy is later followed by aortic and mitral insufficiency due to the atheromatous process, which has previously occurred in the intima of the vessels, extending to the valve leaflets.

In the early diagnosis of arteriosclerosis, the cardinal symptoms are usually well marked: thickening and tortuosity of the peripheral vessels, especially of the radial and branches of the temporal; signs of hypertrophy of the left ventricle; rise of blood pressure; a slight and changeable albuminuria.

The blood pressure is a most important factor in the diagnosis and, however perfectly the heart may contract, it cannot properly circulate the blood without a normal tone to the vessels. By discovering the degree of tension we can frequently forestall much trouble. We know that the systolic and pulse pressure represent the degree of cardiac efficiency, the diastolic pressure the resistance in the vessels. Diastolic pressure is the more important for our study. A diastolic pressure of 100 and over, is usually indicative of a narrowing of the lumen of the vessels from either vasoconstrictor stimulation or true arterial fibrosis. The systolic pressure shows us how the heart is standing up under the strain. If the systolic be high and the diastolic low in a case of arteriosclerosis, we may consider that with such a high pulse pressure, the condition of our patient is favorable. When the heart begins to fail from overwork, the systolic drops and the pulse pressure also, the diastolic remaining about the same and of course any improvement in this condition will be shown by an increase in the systolic; we believe that with a low systolic and a large pulse pressure we have a strong heart and dilated vessels, while with a low systolic and low pulse pressure, the heart itself is weak.

Anthony F. Myers, Reporter.

CHESTER—NOVEMBER

On the invitation of Dr. J. Clifford Scott, superintendent, the meeting of the Chester County Society was held at the Pennsylvania Epileptic Colony Home, November 21, and was largely attended. The meeting was preceded by an elaborate luncheon in the assembly room at 1 p. m., after which the business meeting was called with President Stone in the chair.

Dr. Joseph C. Regan of the Department of Health of New York City, addressed the society on the present epidemic from the chief viewpoint of the internist. Dr. Regan served at the Kensington Avenue Hospital for Contagious Diseases during the recent epidemic of poliomyelitis where 1,700 cases were treated, and his address was very instructive and edifying.

Dr. N. S. Yawger, neurologist at the Epileptic Colony Home, also addressed the society on poliomyelitis from the viewpoint of the neurologist, which was likewise of interest to the medical fraternity.

Dr. Joseph Scattergood, who represented the State Board of Health in Chester County during the recent epidemic, gave a detailed account of the infantile paralysis for that period. There were in all fifty-two cases in the county, with but five fatalities, three inside and two outside of the hospital. It is noted as rather interesting that in no institution where children are inmates, such as the Epileptic Home, the Spring City Hospital, Chester County Home, etc., was there a single case of the disease. There were thirty cases treated at the Chester County Hospital, West Chester, all brought from outside the borough, and not one case developed in West Chester, which shows the splendid manner in which the Chester County Hospital handled and controlled the cases sent. This fact should go a long way toward satisfying the public mind that the hospital's contagious ward instead of being a source of danger to West Chester and immediate vicinity has been instrumental in protecting the neighborhood from what might have been a serious epidemic in the community. The first case of infantile paralysis in Chester County developed July 17, and the last case was reported October 9. Of the patients forty-three were white and three were colored; three were under 6 months, thirty-five between 6 months and 4 years; eight were over 4 years of age. The oldest patient was 19 years of age, this case originating from a visit to the Lancaster Fair.

Twenty-four cases developed in homes where most insanitary conditions existed, and should be an object lesson to all communities to insist that dirty stables, barnyards, pig pens, and overflowing cesspools should be cleaned up and forced out of existence. The greatest number of cases, 18, were in Tredyffrin township. There were 4 in Coatesville, 2 in Kennett Square, 2 in Phoenixville, 1 in Malvern, 1 in Spring City, 7 in East Whiteland and 5 in London Britain township. All other cases are isolated, one in a township, in practically all sections of the county.

D. Edgar Hutchinson, Reporter.

ERIE—OCTOBER, NOVEMBER

The October meeting of the Erie County Society was held in the Public Library Building with a large attendance, President Roth presiding. Dr. D. N. Dennis submitted a report of the Scranton session of the state society.

Dr. Hunter W. Scarlett of Philadelphia delivered one of the most interesting addresses ever given before this society. Dr. Scarlett was a resident physician in the American Hospital for one year prior to the outbreak of the war in 1914, and at the expiration of his term of service he joined the forces of the American Ambulance and for two years rendered effective and signal service there as an eye specialist. The splendid service rendered by the American Ambulance Corps, as also many interesting aspects of the military surgery as related to his specialty, were graphically and vividly portrayed by the distinguished speaker to whom a unanimous vote of thanks was offered. Dr. Scarlett is a native of Erie, prepared for college at Erie High School, and after a brilliant scholastic and athletic career, was graduated from University of Pennsylvania in 1911.

The November meeting was held at the Y. M. C. A. auditorium, November 14, President Roth presiding. Dr. Harlow Brooks of New York addressed the society on "The Treatment of Hypertensive Nephritis from the Standpoint of Our Modern Methods of Study." The subject was presented in an exhaustive and masterly manner, every detail being most interesting.

T. M. M. Flynn, Reporter.

LEBANON—NOVEMBER

The Lebanon County Society met in the court house, Lebanon, November 14, Dr. John Bucher presiding.

Dr. F. A. Faught of Philadelphia read a paper on "Diagnosis and Treatment of Cardiovascular Disease." He said that this subject is daily becoming of more interest and importance to the physician. The strenuousness of the times, the whirl of the business world, the excessive demands of society and the great athletic competition finds this complaint appearing in earlier life and to a more decided degree than any time before this. Insidious in its beginning it has a sure ending—hypertrophy of the heart. As long as the heart muscle itself suffers little or no damage cardiac symptoms will not be evident as it is only when the increasing blood pressure affects the efficiency of the left ventricle that the cardiac symptoms appear. The management resolves itself primarily into a thorough examination and secondarily into an efficient measure to improve the arterial and nephritic efficiency. Dr. Faught recommended that every person approaching middle age and thereafter should have a complete examination at stated periods. In taking the history of the patient one should also investigate the ancestral tree. The physical examination must include urine and blood analyses. The height of blood pressure is not per se evidence of the seriousness of the case especially when systolic pressure alone is considered, for in one case the trouble may be vascular and in another the trouble may be mostly renal. Therefore. the active reduction of blood pressure is not always essential for it may be compensatory and very useful to the patient. A few of the earlier signs of failing myocardium are tightness across chest, or even pain, palpitation, swollen feet, transient dizziness, bright flashes before the eyes, sleeplessness, loss of memory, daytime drowsiness, loss of ambition and dulled conception.

Dr. Faught divided the treatment into three classes: (*a*) those of decompensation, (*b*) those of compensation but with a weakened heart muscle, (*c*) those with no frank outburst of symptoms. Absolute rest in bed is first of all. This alone may effect a change. Heat may be applied to the extremities and cold to the precordia. Special postures, venesection, wet and dry cupping, each have their place in cardiovascular therapy. Hypodermic use of rapidly diffusing cardiac stimulants should be employed freely when indicated. Hygienic conditions such as fresh air, good food, and sunshine, are to be secured. Saline purges and cathartics are of doubtful value. Plenty of water is indicated where the edema and anasarca are marked. Exercise is taken only after the more acute symptoms have subsided and the cardiac balance restored. Though drugs play a minor rôle in cardiotherapy some have been found useful. Among these, digitalis stands first. Since it has a cumulative effect it must be given with guarded care. Strophanthin in 1/200 grain doses hypodermatically or intravenously is useful. The speaker's experience with digitalin has been satisfactory. Morphin even in large doses for a long time is recommended in some cases. Strychnin may be tried after digitalis.

A demonstration of the Faught blood pressure apparatus was given.

George R. Pretz, Reporter.

PHILADELPHIA—OCTOBER

Meeting under the combined auspices of the Philadelphia County Medical Society, the Department of Public Health and Charities, and the Clinical Congress of Surgeons of North America, held in Witherspoon Hall, October 27, at 8 p. m., Dr. Fred B. Lund, president of the Clinical Congress of Surgeons of North America, in the chair.

"Care of the Teeth," illustrated by lantern and cinematograph, was presented by Dr. Weston A. Price, Cleveland, as follows: I wish to express my personal appreciation and that of my profession for this opportunity of cooperation in research work. Three great truths have come to the medical and dental professions within the last decade. Probably no truth since the discovery of the circulation of the blood has been of greater significance to humanity than the discovery of the relation of focal infection to localized and systemic disease. The second new truth is that of the ability of organisms to localize in certain tissues of the body, tissue electivity. For example, when a child has the mumps you realize that the organism has an electivity for the parotid gland. Other organisms similarly will attack the spinal cord and produce nervous disorders. The third new truth is that of the ability of the organism to live with certain characteristics; we may call it biochemical reaction. Such an organism may acquire electivity for certain tissues without getting into the system, and may reside in an environment surrounded by tissues and in which oxygen is scant. Such is the condition existing in a peri-apical abscess at the end of a root of a tooth. The organism to be most feared is not the one attacking you with virulent disease on entering your system, but that which lives almost as a parasite, producing no local irritation, but through a long series of years developing arthritis or various other lesions. We have had many cases of arthritis relieved by no other treatment than that directed to the peri-apical abscess.

In Rosenow's study of tissue electivity he found that in 68 per cent. the organism taken from the appendix selected the appendix when injected into rabbits, and that very few of the rabbits had the organism in other tissues of the body. Of organisms taken from ulcer of the stomach 60 per cent. selected the duodenum; in gallstone infection, 80 per cent. selected the gallbladder; in anterior poliomyelitis, 78 per cent. selected the spinal cord. When we remember that 90 per cent. of people die because their resistance is lower than the attacking power of the organisms we appreciate the value of the elimination of every possible source of focal infection.

Dr. Joseph C. Bloodgood, Baltimore, presented a paper on "Diagnosis of Cancer," with lantern slide illustrations. The diagnosis of cancer means its recognition. If we can recognize the disease at a period when the chances of a cure are 25 per cent., that diagnosis is not highly valuable. Experience shows that left to ourselves, doctors as well as laymen, men and women, will come to the recognition that something is the matter with us, and we will seek help with the chances of 25 per cent. cure. But the medical profession now has the knowledge to give you which will allow you, yourself, to recognize the beginning of cancer and then if you will seek help the chances of a cure are almost 100 per cent. So that we can truthfully say that the only cure for cancer today is information. So far as we know, cancer is not a hereditary disease; it is not a blood disease. Cancer is not contagious or infectious. No matter how much power we give the Public Health Department, national, state, or county, it cannot protect you from cancer as it can from typhoid fever; nor have we any reason to believe, although we may indulge the hope, that we have any antitoxin to protect you from cancer. And, when cancer is fully developed, the greatest art in surgery can offer you only 25 per cent. of cure. So far as we know, cancer never begins as cancer, but as something which may be cancer. If you will listen to the warning given in this way you have almost 100 per cent. chance of prevention.

Cancer is so rare in children that we may eliminate its consideration with them; but, almost 80,000 adults die of cancer every year. In these the disease is distributed mainly into four great regions: The skin; breast of women; the uterus; stomach and large bowel. Regarding cancer of the skin the question of importance is whether the little mole or other skin condition is the kind of thing which should be removed. A great many of these you may carry to your grave, but there are a few which if left alone will carry you to your grave. Regarding cancer of the breast we must teach a woman that if she feels something in her breast on Monday which was not there on Sunday that is a warning, and that if it be cancer and she heeds the warning her chances of cure are 96 per cent. All she sacrifices is the incurring of the slight deformity, which is insignificant compared with death from cancer. In getting this information to the millions of women we need the cooperation of the newspapers, with at the same time exclusion from their columns of the advertisement of quack cancer cures. By our experience at Johns Hopkins we know that information in regard to a lump in the breast is increasing the number of cures. Injury during childbirth is the chief cause of cancer of the uterus. Every woman knows whether her normal functions are regular or irregular; if there is the slightest change she should seek advice. Doctors, at least, can protect their wives from cancer of the uterus, and the medical profession can likewise protect the mothers of the country from cancer of the uterus. Cancer of the abdomen forms a more difficult problem. Here too are needed a little common sense, a little courage, and a little knowledge. Whenever a man or woman has a new sensation about the abdominal parts of the body he should give it heed. Rarely do we find cancer of the tongue or lip except in smokers. If, therefore, men smoke, let them keep their mouths clean. If they have a burn or white patch on the lip, they should stop smoking. (The subject was graphically illustrated by lantern slides.)

"Description and Illustration of Curable Deformities and the Importance of Their Proper Treatment," with lantern slide demonstration, was given by Dr. Robert W. Lovett, Boston. There is much of interest that might be said from a literary and historical point of view regarding the subject of deformity. The humpback has been considered as conferring luck on those who touched his hump; the court jester was misshapen, and many noted men have been physically imperfect. Alexander the Great is said to have had a wry neck; Lord Byron had a club-foot, and Sir Walter Scott was lame from an attack of infantile paralysis occurring when a child. Deformities in general may be divided into (1) the so-called congenital; (2) those due to disease, of which there are three main varieties, those due to (*a*) tuberculosis, (*b*) rickets, (*c*) infantile paralysis. While these are not preventable, their execessive development is as a rule due to neglect and bad treatment. A third general division of deformities includes those caused by our somewhat overcivilized habits; for example, distortions of the feet, round shoulders and faulty attitude and lateral curvature of the spine, are attributable respectively to badly shaped shoes, improper clothing, improper school furniture, overwork and unfavorable environment.

Lantern slides of the three classes of deformities were shown. Bow legs, often attributed to too early walking, are practically invariably due to rickets. The deformities of infantile paralysis are, as a rule, to be prevented by surgical treatment during the acute and convalescent stage. When the disease does not affect the spine or shoulder, deformities are to be prevented and in nearly all instances are remedial by operation. One intrinsic difficulty with the human skeleton predisposing toward round shoulders is that it is a quadruped skeleton set on end. Perhaps the most prolific cause of this deformity is the manner in which young children are clothed with the waist with straps passing over the shoulders and the side elastics fastened to the stockings. Lateral curvature of the spine in the severe or structural form is of four varieties: (1) Congenital; (2) that due to rickets; (3) to infantile paralysis; (4) to empyema. These forms are not as a rule preventable. With respect to deformities caused by badly shaped shoes the matter seems discouraging on reflection that pointed-toed shoes were prominent in the reign of Richard II, and are as bad today as in any previous period. Deformity begins early and consists of displacement inward of the great toe so that practically the right relation never exists in the adult. The little toes are crowded together and lose their motion with resultant poor muscles and a misshapen foot. While the heel was originally designed to keep the boot out of the mud it has attained such an absurd height that a normal gait is impossible. Having made a very earnest and time-consuming endeavor toward the adoption of a really good shoe I have come back to a rather pessimistic attitude toward any radical reform in this cause of deformity.

I hope I may have enlisted your interest sufficiently to have you observe your own children and those outside of your family in the prevention of certain obviously preventable deformities. Such effort I believe would raise the efficiency of the community.

Samuel McClary, III, Reporter,
Philadelphia County Medical Society.

PHILADELPHIA—NOVEMBER

The Philadelphia County Society met November 8, at 8:30 p. m., President McLean in the chair, and presented a symposium on "The Recent Epidemic of Poliomyelitis in Philadelphia and Vicinity."

Dr. Charles K. Mills gave a "Summary of Observations, with Comments." The contributions of the evening are preliminary to a larger report made possible by the provision of a generous research fund for the study of poliomyelitis. I believe that the occurrence of so-called abortive cases has been both over- and under-estimated by writers contending for particular theories; they represent, possibly a number equal to about 20 per cent. of the paralytic cases. Multiple cases of the disease occurring in the same family within a few days of each other argue in favor of simultaneous infection rather than contagion.

The study of the etiology should have for its first concern the habitat of the disease; the results of our studies indicate that the primary hosts and carriers of the disease are animals other than man. The idea that insects may be the primary hosts or carriers does not necessarily imply that the disease is caused by a protozoan or animal parasite. Bacteria, however, may be mechanically conveyed to the human being by insects, especially by food, the typhoid fly being the most notable instance. It seems to me not impossible that some minute parasite like the mite may be the primary host of the protozoan of poliomyelitis. It is my conviction that the disease is humanly contagious in a comparatively mild or moderate degree. Most of the arguments adduced in favor of the theory of human contagion may be used in defense of the insectile theory of causation. During the present epidemic I have not been able to find any evidence of transmission of the disease to a healthy child or adult by a nurse, attendant or doctor in contact with cases of poliomyelitis. The occasional occurrence of epidemics of the disease in northern latitudes in the winter is probably the strongest argument against the insectile theory of causation.

Most important arguments in favor of the entomological origin of the disease are its vastly greater incidence in summer than at other seasons; its occurrence in houses and neighborhoods which are unsanitary and insectile; the manner in which the disease tends to crop up in isolated rural localities. Notwithstanding the arguments against human contagion I do not exclude the necessity of quarantine properly conducted. I am inclined to take issue with Flexner that "the measures which we seek to put into effect against the introduction and spread of epidemic poliomyelitis should be based on the conception of the personal factor as paramount, and not on the notion of insect carriage." From my study in the recent epidemic I believe that that which is most necessary is the cleaning up of the localities in which the disease occurs or is likely to occur. Poliomyelitis will sooner or later recur and perhaps with greater virulence unless strong measures are taken to improve housing and sanitation. With the most exhaustive measures in this direction and guarding against contagion where contagion is possible or probable poliomyelitis will disappear even though its germ for a time elude us, as the micro-organism of yellow fever has to this day eluded the investigator, although the insect carrier of its parasite has been discovered.

"Special Clinical Studies of the Epidemic," was presented by Dr. Theodore H. Weisenburg. In our investigation of the epidemic of infantile paralysis we found a marked uniformity in the initial symptoms. The paralysis as a rule appeared about the third day. Its severity was very great as indicated by a mortality in the Municipal Hospital of 22 per cent.; counting in all the cases which occurred in Philadelphia the mortality was 33 per cent. Only in rare instances was the initial paralysis confined to one limb. Mostly either two or three limbs were involved and in many cases the chest and abdomen. The paralysis usually reached its height in a few hours. The mildest cases often developed the severest infection while a very sick child might have only limited paralysis. In the return of power to the limbs the distal portions recovered first. There were a number of cases with difficulty in talking and swallowing in conjunction with paralysis of the limbs or neck but these were not so frequent as commonly supposed. There were an unusual number with paralysis of one side of the body and in proportion more than reported in previous epidemics. The most fatal cases were the so-called ascending and descending or the Landry types. There were an unusual number of adults in whom the paralysis was much more marked and recovery much slower than in children. Not many colored children had the disease and in those affected recovery of power was much slower than in the whites. There was only one case in which a second attack of the disease occurred, the first attack occurring at 4 years of age, the second thirteen years later in the present epidemic. The entire literature reports only four or five cases of patients suffering a second attack.

The abortive types are those in which there were the usual preparalytic symptoms without paralysis. In these our investigation has been by no means conclusive. With the exception of a few instances multiple and abortive types occurred either at the same time or nearly so, pointing rather to a similar than contagious origin.

Lumbar puncture performed early and repeated as indicated in my experience gives the best results in treatment. Lumbar puncture was done on every child on admission to the Municipal Hospital and in every instance there was found an increased amount of cerebrospinal fluid. Almost without exception marked relief from pain in head, neck and limbs followed this treatment. In some cases in which lumbar puncture was done before the appearance of the paralysis there was subsequently absence of headache and rigidity and pain of the limbs. It cannot be said that any of the chemical forms of treatment have been of value. I regret that I have not observed benefit from the use of the serum treatment. I would not, however, have this method abandoned without further trial. Resident physicians on duty at the Municipal Hospital during the epidemic were unanimously of the opinion that personally they would not submit to either adrenalin or serum treatment, but would welcome frequent lumbar punctures.

"A Summary of Laboratory Studies in Acute Anterior Poliomyelitis" was read by Dr. John A. Kolmer. The paper contains a summary of the researches which my assistants, Drs. Freese, Natsunami, Meine and Brown, and I have conducted since the outbreak of the disease in Philadelphia. Our investigations have been directed chiefly toward determining whether changes could be found in the cerebrospinal fluid sufficiently characteristic and constant to be of value in the early diagnosis of the disease, and to search for the microparasite causing the disease in the organs, cerebrospinal fluid and blood of patients. The microparasite appears to locate first in the pia mater, producing a form of meningitis, from which the infection spreads into the substance of the spinal cord with involvement and destruction of motor cells and possibly of those cells controlling respiration and action of the heart. The germ of the disease has a tendency to locate also in lymphoid tissues of the body.

The changes produced in the intestine are similar to those found early in typhoid fever and other acute infectious diseases. These changes found in a large proportion of the fatal cases are not characteristic of poliomyelitis alone. More than 700 specimens of cerebrospinal fluid were examined with the general result that an increase of the number of cells in the fluid was found more constant in this disease than any other change and that this finding has proved of more value in the diagnosis of the disease than any other laboratory examination. I would urge the prompt performance of spinal puncture. A perfectly clear fluid which flows under increased pressure and shows an increase of cells with or without a slight reaction for protein indicates anterior poliomyelitis. In our detailed study of individual cells in the cerebrospinal fluid no unusual or peculiar types of cell were found. Many other tests, as various methods for detecting an increase of protein in the cerebrospinal fluid, the presence and amount of sugar in the fluid and the power of the fluid in precipitating colloidal gold, and a large number of tests for the antibodies of poliomyelitis in the blood and cerebrospinal fluid, were discussed and the results reported.

Very early in our investigations we found microorganisms in the cerebrospinal fluids, brains and spinal cords in cases of poliomyelitis similar to those recently reported by physicians in Chicago and New York as the cause of the disease. I would emphasize the fact that several investigators have reported finding these bacteria in patients with poliomyelitis as far back as 1905 but did not regard them as the cause of the disease. Our researches leave no doubt that these bacteria are to be found in the organs and possibly in the cerebrospinal fluid of persons suffering with poliomyelitis. They do not, however, produce the disease in the lower animals and are probably of secondary importance. The streptococci bear some resemblance to the minute bodies described by Drs. Flexner and Noguchi but are larger and present other differences. We regard the micrococci described by the Chicago and New York physicians as of secondary importance and playing a rôle in poliomyelitis similar to those streptococci found in scarlet fever but which are not now regarded as the cause of scarlet fever. We are engaged at present in efforts to grow the germ of poliomyelitis in rabbits, and with hopeful results, with the purpose of carrying out experiments bearing on the treatment of the disease with specific drugs and chemicals. At the present I believe that the evidence indicates that acute epidemic poliomyelitis is a bacterial infection. I have found that arsenobenzol which is of proven value as a destroyer of protozoa has no influence on this disease.

"The Possible Etiologic Relations of Certain Insects to the Spread of Infantile Paralysis (Poliomyelitis)" was presented by Mr. Joseph H. Bodine. A study of previous epidemics and the present one of poliomyelitis point to possible insect transmission of the disease. This is evidenced in the sporadic occurrence of the disease, its biennial recurrence, rural nature; the fact that only one or two people in the same household in actual contact contract the disease, the occurrence of most cases where the number of animals relative to the number of people is largest, and the fact that cases show a seasonable distribution to a greater degree than might be expected in contact infection. Experiments prove that the virus of poliomyelitis can be carried externally and internally in an active state by many varieties of insects. In thirty-eight or more diseases insects are known to play important parts as disseminators, intermediate hosts and transmitters of disease.

The chief reason for considering the tick in the study of poliomyelitis is the biennial occurrence of the disease, the tick requiring two years to mature. The possible connection of the mosquito with poliomyelitis is suggested by its presence in every locality thus far studied in the present investigation; the seasonal distribution of the disease, and the small percentage of mosquitoes infected in such diseases as malaria, thus accounting for the sporadic occurrence of the disease. The stable fly, resembling in blood-sucking habits the African species, was found in almost every neighborhood visited in the present investigation. The reasons for regarding the stable fly as a possible transmitter of poliomyelitis, as suggested by Rosenau, were the blood-sucking habits of the adult fly, the seasonal abundance of the fly closely correlating the incidence of the disease, the geographical distribution of the fly which is wide or at least co-extensive with poliomyelitis, its abundance under rural as well as urban conditions, flies following horses along lines of travel and in many instances infection of children who had frequented places where the stable fly was found.

The paper contained details of the habits and life history of the insects discussed.

"Summary of State Work in Poliomyelitis" was given by Dr. Samuel G. Dixon, state commissioner of health. The first epidemic of poliomyelitis in Pennsylvania occurred in 1907, when 131 cases were reported. In 1908 a similar outbreak occurred in Adams County. As a result of our experience of 1907 and 1908 poliomyelitis was made reportable and our first comprehensive mortality and vital statistics began in 1910. Up to July of that year but few cases were reported but from that time the number increased rapidly. There were 269 deaths in that year. Although Pennsylvania looked forward to the next year with anxiety there were but 173 cases on our record. In 1912 there were 267; 1913, 141 cases; 1914, 113 and in 1915, 162. The cases in the last three years mentioned were scattered throughout the state. The only real nestling in 1914 was in the southwestern part of Washington County, where there were thirty-two cases. The concentration of 1915 was in the northwestern corner of the state near Erie, consisting of 100 cases. This present year opened well and as late as July there were only 22 cases. The disease then began to be so severe in New York that there was a tendency to stampede and Pennsylvania was beginning to be invaded by those in the acute stage of poliomyelitis. Our somewhat rigid quarantine established quickly in this emergency kept thousands of sick and infected children out of our commonwealth. Medical men in charge in New York believe they have abundant proof of the transmission of the disease by contact and by third person.

The paper contained a report of the work of the department of health on poliomyelitis during the recent outbreak.

Dr. Wilmer Krusen, director of health of Philadelphia: Rather than discuss the subject from the scientific standpoint I shall simply call attention to the diagrams exhibited showing the distribution of poliomyelitis as to wards and tell you what we are trying to do to prevent an outbreak next year. Of 977 cases occurring within 131 square miles between June 1 and October 31 of this year 533 were males and 444 females. Of this number of patients 228 were treated in the homes and 122 died in the homes, a mortality of home-treated patients of 53 per cent. in contradistinction to patients treated in hospitals. Of the total number 749 were treated in the Philadelphia Hospital for Contagious Diseases, or 77 per cent. Of these 85 died within twenty-four hours of their admission to the hospital and 83 later than twenty-four hours, a mortality of 22 per cent. of those treated in the hospital. In the distribution as to wards we find there is no relationship between the congested population per acre and the disease; for example, in the Twenty-Second Ward with 76 cases of the disease there was a population of 10 to the acre, while in the Third Ward there were only 16 cases with a population of 210 per acre. Concerning the onset of the cases according to months we see that 3 cases occurred prior to July 1; 87 occurred in July; 503 in August; 312 in September and 72 in October. In November up to the present there have been 7 cases. We have had 28 cases in colored children; 4 were treated at home and 4 died at home. Twenty-four were treated in the hospital, of whom only 4 died. Thirteen times we found 2 cases in the same house; 3 cases in the same house once. A secondary case was seen in the same house during a short period of incubation six times. In each of three different hospitals a secondary case was seen once.

I want to pay tribute to the splendid work being done by the Home Relief Division of the Emergency Aid in making it possible to carry on the treatment of patients whose parents were unable to pay for this care. We have had magnificent cooperation also from the different hospitals. The health department will continue the crusade against filth suggested by Dr. Mills until Philadelphia is a more healthful place in which to live.

Dr. Allen J. Smith: In our efforts to determine the etiology of poliomyelitis I believe success will be attained by the discovery of some sort of insect transmitting something which is protozoan rather than a bacterium.

Dr. Samuel S. Woody: In the Municipal Hospital for Contagious Diseases our efforts have been directed first to the treatment of the patient and secondly to limiting the spread of the disease. In treatment the one thing which we can state is positively beneficial is lumbar puncture. Immune serum is indicated theoretically; if there be virtue in it, it would seem to be along the lines of large dosage. Except in one instance I know of nothing that would lead me to believe that the disease has been carried by a third party. Samuel McClary, III, Reporter.

THE TRUTH ABOUT MEDICINES

NEW AND NONOFFICIAL REMEDIES

Swan's Bacillus Bulgaricus.—A pure culture in tubes of the *Bacillus bulgaricus.* It is designed for internal administration and for direct application to body cavities, abscesses and wounds. The culture is supplied in boxes of twelve tubes. The tubes must be kept in a cool place and must not be used after the date stamped on the package. Swan-Myers Company, Indianapolis, Ind. (*Jour. A. M. A.,* Nov. 25, 1916, p. 1601).

PROPAGANDA FOR REFORM

Patent Medicine Prosecutions Under the Food and Drugs Act.—The following information was brought out in connection with prosecutions by the federal authorities chiefly under that portion of the Food and Drugs Act which provides penalties against misleading, false and unwarranted therapeutic claims: Dr. Porter's Antiseptic Healing Oil was found to be essentially a solution of camphor and carbolic acid in cottonseed oil. It was claimed to be an excellent remedy for cuts, sores, old chronic ulcers, corns, bunions and a preventive of whooping cough, diphtheria and tuberculosis. Ballard's Horehound Syrup Compound was sold "For Consumption, Coughs and Colds" and other diseases. Dr. Shoop's Night Cure, was claimed promptly to cure ulceration, inflammation or congestion of the womb, leucorrhoea, painful ovaries and other female diseases. It was found to be a suppository containing zinc carbonate, zinc sulphate and boric acid in a cacao butter. Dr. Shoop's Cough Remedy was found to be a syrup containing ammonium benzoate and probably white pine tar and gum. Dr. Shoop's Restorative was sold for the cure of all diseases of the stomach, liver and blood and still other diseases. Father John's Medicine was advertised as a consumption "cure." Dr. Shoop's Twenty Minute Croup Remedy was found to be a syrup containing glycerine and a small amount of salicylic acid. Bad-Em Salz was found to consist of sodium chloride, sodium sulphate, sodium bicarbonate, and a small amount of tartaric acid. It was sold with claims suggesting that it was derived from European springs and that it dissolved gallstones and gravel in the kidneys or bladder. Kennedy's Cal-Cura Solvent was a water-alcohol liquid containing 2.44 per cent. potassium acetate, 16.75 per cent. alcohol, 52.46 per cent. cane sugar and vegetable matter resembling mint, cardamom and boneset. From the claims which were made one would get the impression that there could be few ills that it would not cure (*Jour. A. M. A.,* Nov. 4, 1916, pp. 1385-6).

Intravenous Therapy.—The technic, although not difficult, must be thoroughly mastered, or undue pain, infection, air embolism, or even death may result. Often a drug has an action different from that obtained by the usual method of administration. Deaths have resulted not only from a lack of proper technic, but also from a lack of knowledge of drugs so administered. Thus death has followed the injection of an iron preparation containing peptone, and also following intravenous injection of ether. Intravenous injections, while sometimes superior to the slower methods, are distinctly inferior when a continuous rather than a sudden action is desired as with iodids, nitrites, iron or salicylates. Intravenous injections should not be resorted to unless distinct advantages are to be secured, as when immediate action is necessary in emergencies, where the drug is not otherwise absorbed or is destroyed in the stomach. In the light of our insufficient knowledge of the action of simple drugs when administered intravenously, the injection of complex mixtures of drugs is particularly reprehensible (*Jour. A. M. A.,* Nov. 11, 1916, p. 1450).

Sleepy Water.—Chicago physicians are told by the Sleepy Water Corporation that Sleepy Water is a "cure" for diabetes, Bright's disease and many other ills. The claim is also made that for six years not a single case of nephritis or diabetes treated with this water has failed to be cured. Sleepy Water sells for a dollar a gallon, but you cannot buy less than fifty gallons. At least a gallon a day must be taken and even five gallons a day may be taken "without any detrimental effect on the heart action, no matter how bad the heart action seems to be." If we are to take the corporation's word for it, "Sleepy Water" has performed many miracles, although details of its modus operandi are not forthcoming, "as no autopsy has been performed on a person cured by Sleepy Water" (*Jour. A. M. A.,* Nov. 18, 1916, p. 1530).

Some Misbranded Nostrums.—The following "patent medicines" were found misbranded by the federal authorities: A. D. S. Cod Liver Oil Comp., claimed by the American Druggists' Syndicate to be a sovereign remedy in pulmonary tuberculosis, was not possessed of the virtues claimed, nor a preparation of the active principles of pure Norwegian cod liver oil. Johnson's Chill and Fever Tonic, claimed to be a "guaranteed remedy" for dengue fever, typhoid fever, measles and la grippe, was a watery solution of Epsom salts and cinchonin hydrochlorid. A. D. S. Peroxide Talcum Antiseptic and Deodorant, sold by the American Druggists' Syndicate with the claim that it contained a peroxide and to be a wonderful antiseptic and germicide, was found to have no antiseptic properties and no detectable peroxide. Dr. King's Royal Germeteur, claimed to be a "germ destroyer," was found to consist essentially of 98 per cent. water and 2 per cent. sulphuric acid, saturated with hydrogen sulphid (*Jour. A. M. A.,* Nov. 18, 1916, p. 1541).

Tartrates in Nephritis.—While the vegetable acids, such as citrates, burn to alkali in the body, the tartrates are not so converted, and leave the body nearly in their original form. Underhill and others have shown that tartrates in large doses can cause tubular nephritis in animals. While human beings tolerate without apparent kidney disturbance small doses of tartrates, either given medicinally or as they occur in baking powders and in certain foods, and while it would probably require very large doses to cause kidney inflammation, it would seem inadvisable to give food rich in tartrates or to give medicinally large doses of tartrates in nephritis (*Jour. A. M. A.,* Nov. 25, 1916, p. 1601).

Unna's Paste for Varicose Veins.—In the treatment of varicose ulcers of a mild form Dr. Ochsner prepared a boot composed of several layers of a bandage, each treated with Unna's paste applied hot. The paste consists of gelatine 4 parts dissolved in 10 parts hot water to which 10 parts glycerin and 4 parts zinc oxide are added (*Jour. A. M. A.,* Nov. 25, 1916, p. 1617).

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ADDRESS

CHAIRMAN'S ADDRESS*

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In calling to order the Section on Surgery of the sixty-sixth session of the Medical Society of the State of Pennsylvania I hope I shall have met in some sense my obligation when I remind you, for I am sure I am doing nothing more, of the great principles which this section stands associated to promote. Now we are in a time of unusual stress and test. There never was a time, therefore, when we needed more clearly to conserve the principles for which this section stands than the present time. That part of the world from which our inspirations if not our methods have in the past been drawn seems for the present in the caldron. Just what the outcome of this gigantic ebullition is to be, no one dares at present even to prophesy. We, therefore, stand apart, as yet; unembroiled, conscious of nothing so much as our own powers, resources and possibilities.

Surely then, surgical America as never before holds an invitation, a sincere welcome; perhaps to advantage, some hostility to her front, even a partially closed door, but never a treacherous greeting. How then shall we meet this new order of conditions into which we were so ruthlessly precipitated? As many see it, there must be no difficulty so great, no truth so obscure, no problem so involved that the American surgical mind cannot and does not solve. The prime requisite must ever be rightly to conduct the search, and when we have attained to that position of excellence to which we are not only capable but justly entitled, we must struggle to adjust these advantages according to the American idea and ideal, then by vigilance retain them, keeping constantly before us this certainty that our advantages will be proportioned only to the extent of our initiative and the depth of our logic.

1222 Spruce Street.

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* Delivered before the Section on Surgery of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 19, 1916.

ORIGINAL ARTICLES

THE SUPPORT OF THE STOMACH AFTER THE BEYEA GASTROPEXY*

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In 1899, Stengel and Beyea[1] reported a case of gastroptosis, which had been studied medically by the late Dr. William Pepper and Dr. Stengel. At their request, Dr. Beyea devised and did an operation in April, 1898, for the correction of the gastroptosis. This he accomplished by shortening the gastrohepatic omentum by sutures. He did not know then that, two years before, Duret[2] had devised and practiced for the same purpose an operation in which he sutured the stomach at the lesser curvature to the parietal peritoneum just below the xyphoid cartilage; nor that one year before Davis[3] had performed a similar operation, suturing the gastrohepatic omentum near its attachment to the stomach to the parietal peritoneum of the abdominal wall. In 1899, Rovsing[4] elevated the stomach by passing three rows of interrupted sutures through the serosa and muscularis of the anterior wall of the stomach and all the structures of the abdominal wall. When the sutures were secured, a broad surface (six centimeters) of the anterior wall of the stomach was permanently fixed to the anterior abdominal wall near the xyphoid cartilage. Coffey,[5] in 1902, reported two cases in which he elevated the stomach by suturing the great omentum at a point 1 inch below its attachment to the transverse colon to the anterior abdominal wall about 1 inch below the umbilicus.

There has been much discussion concerning the value of operation for gastroptosis, many believing it can do no good in any case. I shall not discuss this phase of the subject further than to report the results in five cases operated on and to say on the basis of these results that the operation may be a very valuable one. As to which operation is best, the contest seems to lie between the Beyea and the Rovsing, a larger number of the latter than of the former having been reported. The Beyea operation has been done a much greater number of times than any other except the Rovsing. The reported results of both operations seem to be almost if not uniformly excellent. In all the operations except the Beyea the stomach is suspended from the anterior abdominal wall, Beyea alone depending on a shortening of the gastrohepatic omentum. The case against his operation rests entirely or almost entirely on the criticism that the gastrohepatic omentum is too frail and delicate a tissue continously to support the stomach with its contained food after this omentum has been shortened. The Beyea operation is the best, in my opinion, because it probably gives a better support to the stomach afterward than any other operation yet reported, and this support is in the best possible situation, but the stomach is not then hanging by the shortened gastrohepatic omentum.

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* Read before the Section on Surgery of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 20, 1916.

1. Jour. A. M. A., 1910, liv, 766.
2. Rev. de Chir., 1896, p. 430.
3. West: Med. Rev., October, 1897, p. 291.
4. Arch. f. klin. Chir., 1899, lx, p. 812.
5. Phila. Med. Jour., Oct. 11, 1902.

A few very important anatomical relations between the liver and the stomach seem to have been generally overlooked in connection with this operation. When the body is formalin hardened the liver preserves the shape and relations it had in life after the cadaver has been opened, and preserves its normal shape after it has been removed from the body. In such a body the anterior and upper surface of the stomach is seen to be in intimate contact with the under surface of the liver over a large area, a large concavity presenting where the stomach presses against it. Other depressions on the under surface of the liver are due to the pressure against it of the right kidney and suprarenal capsule, upper part of the duodenum and hepatic flexure of the colon (see Figure 2). During the Beyea operation the gastrohepatic omentum can be exposed for suture only by strong retraction of the liver upward, the retractor being prevented from damaging the liver by the interposition of a gauze pad, and by similar strong retraction of the stomach downward. After such strong irritation of these two opposing surfaces and the introduction of sutures into the lesser omentum, with the stomach held against the liver by the sutures and the increased intra-abdominal pressure caused by the adhesive strips and binder to support the wound, it would be strange if adhesions did not develop between these two closely approximated gastric and hepatic surfaces. I had the privilege of operating a second time after having done a Beyea operation on the patient previously (see Case 4). The adhesions between the stomach and liver were close, firm and covered a considerable area (see Figure 2). I believe the support was stronger than can be obtained by any fixation of the stomach to the anterior abdominal wall by sutures. That such adhesions do not seriously interfere with the function of the stomach is best shown by the excellent results of the Beyea and the Rovsing operations. The advantage of the position of the support of the stomach after the Beyea operation has always been conceded, the only question raised has concerned its strength. The recognition of the presence of such adhesions after the Beyea operation should give it superiority over every other yet suggested.

There are no symptoms pathognomonic of gastroptosis, merely those of chronic gastric trouble, usually those of retention. Even the Roentgen ray may not be particularly helpful, as shown by Cases 3, 4 and 5. In four out of my five cases the diagnosis was made at operation by the length of the gastrohepatic omentum and the absence of any other sufficient cause of the trouble. The results of operation prove the correctness of the diagnosis. The esophageal attachment of the stomach remains fixed at its normal level and the pyloric end sags only a little, if at all. The sinking of the intervening portion increases the difficulty with which the food rises to the level of and passes through the pyloric opening. This accounts for the dilatation of the stomach usually found, which was excessive in Case 3. The chief purpose of the operation is to overcome this obstruction.

Case 1.—Woman, 28 years old, school teacher, weight 101 pounds in March, 1912, two years before weighed 115 pounds, and for the previous six years had been developing gastric distention and belching with depression, weakness, etc. She had grown much worse in the past nine months having very severe attacks on several occasions. She was admitted to University Hospital, March 18, 1912. Diagnosis of gastroptosis was made by Dr. George M. Piersol and corroborated by Roentgen ray. The Beyea operation was done at Howard Hospital, March 30, 1912. Abdomen was long and narrow and a considerable degree of hepatoptosis was present. Five silk sutures were introduced into the lesser omentum, extending from the cardiac end to just short of the vessels in the right free border, and each suture passing through the omentum at five points beginning as high as possible and catching the wall of the stomach at the lesser curvature. When these sutures were tied the stomach was drawn up close to the liver which overlapped a considerable portion of the anterior wall of the stomach. The abdominal wound and the dressing were supported by adhesive strips. The after course from the operative standpoint was uneventful. A year later the patient was having little or no trouble on a diet of steak, chops, vegetables, etc. In the meantime her mother suffered from apoplexy and the patient took her place at home, doing most of the housework. She was very much pleased with her improvement after operation. In the spring of 1914 she had several hemorrhages of the lung. She was in a tuberculosis sanatorium from April, 1914, until September, 1915, when she weighed 116 pounds, had no cough and was apparently in excellent condition. On June 5, 1916, she said that about once every month or two months she had a "bilious spell" which consisted of distress in the stomach region, some nausea but no vomiting. She does light housework. Without the operation she could not have become strong enough to take up her mother's work at home, nor carried out a year and a half of sanatorium treatment for phthisis so successfully and find herself four years after operation in such good condition with only occasional attacks of nausea.

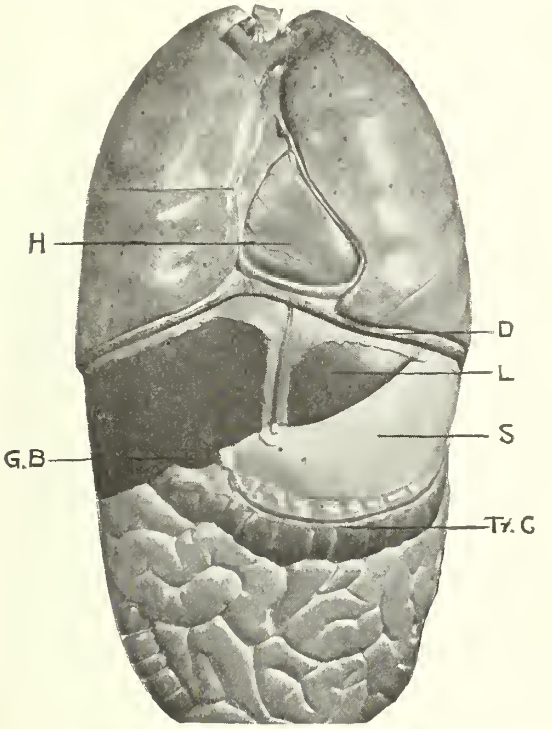

Fig. 1.—A His model, showing intimate contact between under surface of liver and upper anterior surface of stomach. H. Heart. G.B. Gallbladder. D. Diaphragm. L. Liver. S. Stomach. Tr.C. Transverse colon.

It was my privilege to assist Dr. A. C. Wood in operating on three cases. With his permission I am reporting one of them for two reasons. The patient showed an operation scar in the median line over the stomach, and when the abdomen was reopened the stomach was found adherent to the anterior abdominal wall by strong but long adhesions, probably the result and purpose of the previous operation. The other reason is that Dr. Wood in this, as in the other two cases, passed each of his silk sutures first through the gastrohepatic omentum as high as possible, and next through the outer layers of the stomach at the lesser curvature. He thus ignored all of the intervening portion of the omentum, and he did this because he was depending for the later support of the stomach on the adhesions to the liver which he expected would develop.

Case 2.—This patient is an insane woman, who was 34 years of age when admitted to the Philadelphia Hospital, Nov. 7, 1907. The hospital record says that for several years previously she had been suffering from severe pain in the stomach and vomiting after eating. The stomach was operated on in the previous May. She said that she had been in seven different hospitals during the preceding seven years. From time to time notes appear in the records showing gastric disturbance. For example, she vomited two ounces of blood at one time; on another occasion she was fed by stomach tube for a week, then by enema, then by peptonized milk by mouth; at another time she was said to vomit incessantly for a couple of days, the abdomen was distended and tympanitic. The stomach contents and feces were examined, but no diagnosis was recorded. The patient was maniacal and could not well be moved for Roentgen-ray examination. The following note appears under date of April 18, 1913: "Still vomits a greenish fluid at frequent intervals. Much emaciated and anemic." I saw her June 2, 1913, and advised an exploratory operation which Dr. Wood did on the following day. The abdomen was opened by an incision alongside the old one. Adhesions were found between the stomach and great omentum and the abdominal wall, which caused the stomach to turn on itself. These were separated but no signs of an ulcer or other lesion could be found except an unusually long lesser omentum. With each of the silk sutures the gastrohepatic omentum was caught at a point as high as possible and then the needle passed through a part of the stomach wall at the lesser curvature, the intervening portion of the omentum not being included in the sutures. When the sutures were tied the stomach was approximated closely to the under surface of the liver just as when the omentum is gathered up in the suture. The operation was concluded in the usual way and the healing was uneventful. At the present time the patient is much heavier and stronger. She has been continuously under the charge of the same nurse since the operation, three and one-

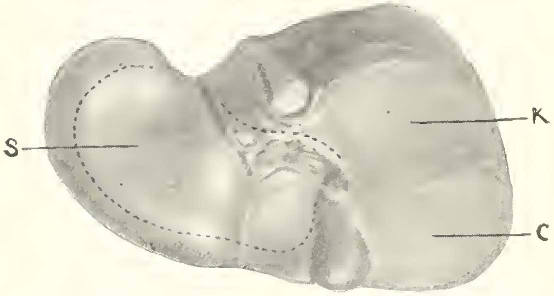

Fig. 2.—Under surface of liver from a His model, again showing intimate contact and evident pressure between liver and underlying structures, by depressions which are constant. K. Depression for right kidney. C. Colon. S. Stomach, which includes remainder of under surface of liver. Dotted line includes approximately area of adhesion to stomach.

half years ago, and this nurse says that she has not shown any signs of gastric disturbance since the operation.

Case 3.—Man, 30 years of age, van driver, was admitted to medical ward of Philadelphia Hospital, July 29, 1914, and transferred to the surgical ward, August 19. He complained chiefly of gastric pain, belching, vomiting and distention over the stomach; he said he was a moderate user of alcohol, but evidently took it to excess. Four years before admission he was operated on for appendicitis in another hospital. He began to belch gas about three months afterward, and gastric distress continued to grow worse with loss of appetite, vomiting, increase of belching, soreness over the stomach and dyspnea. He improved after medical treatment in another hospital and went to work again. About two weeks before admission to the Philadelphia Hospital the patient began to grow worse again with increase of all the symptoms, the dyspnea becoming particularly distressing, and he lost considerable weight. Roentgen-ray examination: Fluoroscope showed retention of bismuth meal after six hours, the amount of residue not being very great. The pylorus could not be seen in the anteroposterior view, and could be seen only when viewed laterally. Peristalsis was not greatly increased. The transverse colon was extremely high in the abdomen, its middle portion being just below the diaphragm. The stomach was turned on itself, the pylorus probably being held anteriorly against the abdominal wall by adhesions. Roentgen-ray diagnosis was chronic ulceration of the stomach, and operation was performed Aug. 21, 1914.

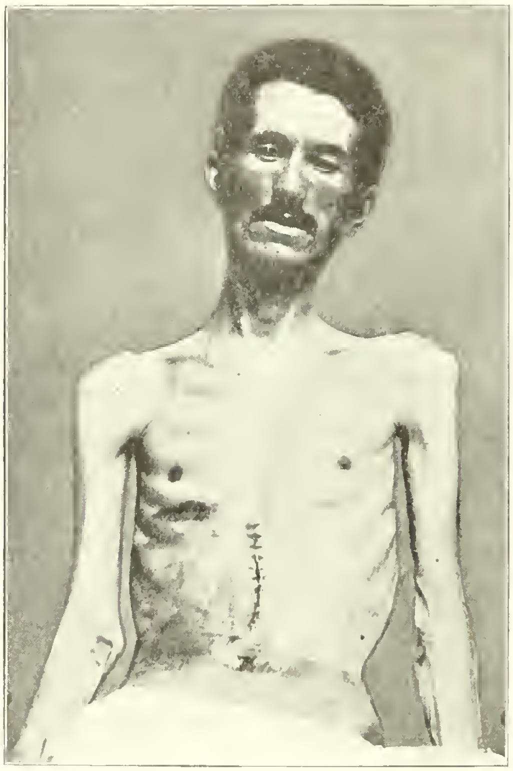

Fig. 3 A (Case 4).—About three weeks after Beyea operation. Patient had to be supported in sitting position by two orderlies whose figures have been removed.

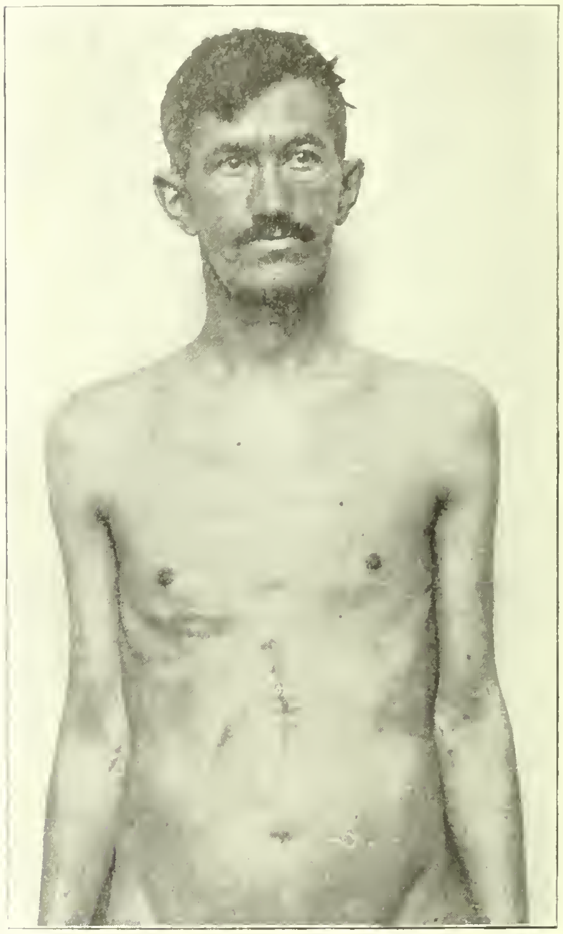

Fig. 3 B (Case 4).—Three months and three weeks after Beyea operation, or just preceding the last gastro-enterostomy.

On opening the abdomen the stomach bulged into the wound and was found to be very much dilated. No adhesions, congestion or induration could be found anywhere after prolonged and careful examination, thus excluding ulcer so far as concerned visible or palpable signs. No palpable obstruction of the pylorus could be made out. On drawing out the stomach it was observed that the lesser curvature easily came out of the abdominal wound, showing a considerable degree of gastroptosis. This was the only condition found that could account for the symptoms which with the gastric dilatation might be due to the fixation of the pylorus and first part of the duodenum at their normal level and the sinking downward of the rest of the stomach, i. e., to pyloric obstruction. The Roentgen-ray examination also suggested pyloric obstruction. It was decided not to do more for the gastric dilatation than to remove the assumed cause by the Beyea operation, which was completed as in the preceding cases. The operative result was excellent and the gastric distress gradually abated. The patient asked to be discharged to go to work again, and was allowed to leave Oct. 7, 1914. He still complained occasionally of dyspnea. When seen very recently he said his stomach had given him no trouble since the operation, except from slight belching.

Case 4.—Man, 40 years of age, was admitted to the drug ward of the Philadelphia Hospital, May 28, 1915, with morphinism and pain in the abdomen. He had had indigestion since 1902; said his trouble began with pain in the stomach three to four hours after eating, which was relieved by food or sodium bicarbonate. He did not vomit for several years; had weighed 199 pounds, but at that time weighed only 118 pounds. In 1906 he was operated on for gallstones but none were found. In March, 1907, in another city, a gastro-enterostomy was performed on him, after which he was relieved for a time and gained in weight from 130 to 165 pounds. The surgeon who did the operation kindly furnished the information that it was done for a large duodenal ulcer with subacute perforation. The patient returned to the same surgeon in 1909 with a gastrojejunal ulcer, on account of which the gastro-enterostomy was completely cut off and the openings in the stomach and duodenum closed on Dec. 4, 1909. At the same time the ulcer was dissected out and a plastic operation after the Finney method was done at the site of operation. The patient said that he received no relief after this third operation; continued to have gastric pain, belching and constipation, but with the aid of medicine he managed to keep his weight up to about 168 pounds.

About July, 1914, he began to have severe abdominal pain after eating, which was relieved by vomiting. There was no blood in the vomitus but the stools were tarry. He began to take morphin about this time. On admission to the drug ward of the Philadelphia Hospital he was taking, he said, from two to seven grains of morphin sulphate by hypodermic each day. There was no blood in the vomitus or stools at this time but he was constipated. He was transferred to the medical ward June 11, 1915, and from there to the surgical ward August 10, with the diagnosis, after the use of the Roentgen ray, of gastric ulcer, probably malignant. Operation Aug. 28, 1915: After opening the abdomen in the median line above the umbilicus, a careful search failed to reveal any evidence of carcinoma or ulcer. There were some adhesions in the region of the gallbladder and a slight thickening and abnormality in shape of the pylorus, which were accounted by the previous Finney operation. No evidence of the previous gastro-enterostomy was discovered except some adhesions in this region. One was hard put to it to account for the previous great distress of the patient and his great emaciation. Previous experience with gastroptosis led to an examination for it. The stomach, including almost all of the lesser curvature, was easily pulled out of the abdomen. In its longest part the gastrohepatic omentum measured about 8 inches, and there was a considerable dilatation of the stomach. A gastropexy seemed to offer the only chance of relief and the Beyea operation was done. After operation his vomiting practically ceased except for a small amount at times which he said was due to overloading his stomach. At the end of three weeks he had recovered from his great weakness sufficiently to sit up in bed, but at the end of about six weeks he began again to vomit. This increased to severe vomiting after every meal or anything he ate. It was noted Dec. 11, 1915, that for about three weeks he had been eating only crackers with milk, but he still looked much better than before the operation (see Figs. 3 and 4). A roentgenogram taken at this time seemed to show that the operation had not succeeded in maintaining the elevation of the stomach.

With the permission of Dr. S. S. Cohen, to whose medical ward he had been transferred, I had the patient transferred to the University Hospital because I was not then on duty in the Philadelphia Hospital. Operation Dec. 18, 1915: Incision in line of that of last operation. Parietal peritoneum was closely adherent to liver but not to stomach, which was held up closely and firmly to under surface of liver. The area of adhesion between liver and stomach could not be determined except very crudely. Only its anterior limit could be at all defined. It extended from the region of the pylorus to the left of the cardiac orifice in a line approximately 2 or 2½ inches posterior to and parallel with the anterior edge of the liver. The adherent area must have extended backward at least to the transverse fissure of the liver, the upper attachment of the gastrohepatic omentum. There was not the least evidence of any stretching of the adhesions. On searching for the cause of the vomiting it was noted that the stomach was considerably more dilated than at the preceding operation. There were many adhesions in the region of the pylorus, duodenum and gallbladder, so that it was difficult to locate and expose the pylorus altered by the previous Finney operation. In my preceding operation I had decided that a certain thickening in this region was the result of the Finney operation, but at this time there was a distinct mass at the pylorus closely adherent to the pancreas with almost complete obstruction. A few lymph nodes along the lower border of the stomach were enlarged. In my first operation, four months before, I had manipulated the pylorus excessively in deciding whether a slight thickening of the pylorus was abnormal or only the result of the preceding Finney operation, a view which I favored. My manipulations probably aggravated an old ulcer with the development of a mass of lymph and a few inflamed lymph nodes. The possibility of a cancer was disturbing. The close and firm adhesions of the stomach to the liver would make the necessary mobilization of the parts for ligation of the gastric vessels, the protection of the underlying bile duct, portal vein and other vessels difficult, and excision of the pyloric portion of the stomach and duodenum dangerous. I did a gastro-enterostomy. The result was striking. The patient did not vomit after operation, did not complain of pain or any other symptom and passed to full diet without any difficulty and as rapidly as he was permitted to do so.

The intern made the following note Dec. 25, 1915: "Condition excellent. Patient always hungry." The patient was discharged Jan. 10, 1916, and left soon afterward for his home in the western part of the state. Under date of Sept. 20, 1916, he wrote that he had been back at his work since about the middle of April, and felt good but had to avoid fruits and acid foods. The value of the Beyea operation in this case is seen in the fact that notwithstanding a preceding gastro-enterostomy and later a Finney operation, without correction of the gastroptosis, his gastric trouble increased until he was in extreme emaciation.

Case 5.—Man, 37 years old, weighed at time of operation 140 pounds, normal weight 160 pounds. A few weeks ago it fell to 134 pounds, following a period of persistent vomiting. Last summer while working hard, losing sleep and having irregular meals, during a period of about three months, he vomited about six or seven times a day. He could eat almost any food without pain and would retain it from a half to two or three hours before vomiting. Vertigo occurred frequently and the gastric condition kept gradually growing worse. In April, 1915, he moved to another place and went into the saloon business. While there a physician irrigated his stomach fifteen to twenty times, the passage of the tube finally being prevented by pain and distress. He came to Philadelphia for the purpose of having an operation and consulted his former physician, Dr. W. Drummond, who referred him to me. Patient was admitted to the medical ward of University Hospital, Sept. 6, 1915. Fluoroscopic examination suggested gastric ulcer. There was some gastroptosis. Operation Sept. 13, 1915: A careful exploration disclosed no evidence of ulcer; a normal appendix and gallbladder, and nothing to account for the symptoms except a marked gastroptosis. This was corrected by a Beyea operation. Healing was uneventful, and patient was transferred to the medical ward for further observation, but did not develop any gastric symptoms. He was discharged Oct. 6, 1915, feeling very well. He wrote, under date of Sept. 26, 1916, that he had had no trouble with his stomach since the operation, that he worked every day and felt as strong as he ever did.

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DISCUSSION

Dr. Henry D. Beyea, Philadelphia: While Dr. Thomas seeks the formation of adhesions between the stomach and liver we make every effort to avoid such adhesions. The patient is placed in a reversed Trendelenberg position, therefore the thorax is elevated and as a result when the abdomen is opened the stomach drops down out of the field of operation, exposing the gastrohepatic omentum. We avoid touching any part of the peritoneal surface with a gauze sponge. Sterilized soft sea sponges are placed beneath retractor to avoid injury and irritation of the liver peritoneal surface. It is our belief and experience that adhesions disturb the physiologic function of the stomach and give rise to painful and even incurable secondary symptoms.

The operation which I originally devised and performed was a simple plication of the gastrohepatic omentum, and while the results were satisfactory it became our object to obtain the highest possible position of the stomach and, to remove the frequent criticisms by surgeons in this country and Europe that the tissue of the gastrohepatic omentum was not of sufficient strength to hold sutures, we sought to strengthen the attachment of the elevated stomach. Discovering a ligament of strong fibrous tissue at the transverse fissure of the liver, a reflection of the capsule of Glisson into or onto the gastrohepatic omentum here above at its point of origin, this became our point of attachment of the stomach above. This ligament is a band usually at least one eighth of an inch wide running along the line of the transverse fissure. I pass four or five interrupted sutures from above downward, each suture is first passed through this strong band and then the delicate peritoneal tissue of the gastrohepatic ligament is caught in the grasp of the needle at short intervals, gathering it up. until the lesser curvature of the stomach is reached. Finally the suture is completed by including a small single bite of the peritoneum and muscularis of the stomach, much as in intestinal suturing, just below the vessels. After the four or five sutures have been introduced in this manner the thorax is lowered, the stomach very gently pushed upward and the sutures tied. As a result the lesser curvature of the stomach is brought firmly in contact with the liver along the line of the transverse fissure.

There is no question as to the strength of attachment, the stomach is not immobilized and if the operation is performed under strict aseptic condition and with the extreme care described no adhesions will form between the under surface of the liver and stomach. I have reopened the abdomen for independent indications in two of our cases thus operated on and in one no adhesions were found and in the other only a slight adhesion between the anterior wall of the stomach and peritoneum of the abdominal wall along the line of incision. The incision too, should not be more than 3 inches long. We have, up to the present time, operated on more than fifty cases of gastroptosis by this technic and when the last study of these cases was made over two years ago, the large majority, at least 95 per cent., reported that they had been markedly improved in health, many wonderfully improved. Further, in all of those examined by skiagraph after operation, the stomach was found in excellent position and regardless of the length of interval.

Dr. Henry K. Pancoast, Philadelphia: Dr. Thomas in closing his remarks made the statement that the Roentgen-ray examination was not always an indication of gastroptosis or the extent. I realize that this statement might be true if we accept the interpretations often made. No mistakes are more frequently made than in incorrect interpretations in connection with the Roentgen examinations for ptosis. Usually they arise from the failure to recognize atony as one of the essential features of pathological gastroptosis. This applies also to what Dr. Beyea has just said. After operation the organ is still a dilated and atonic one. and the case must be treated medically until the symptoms arising from dilatation and atony have disappeared.

Dr. George M. Dorrance, Philadelphia: In the connection with the Roentgen-ray examination, it is interesting to note that Dr. Thomas operated on his patient in the longitudinal position, whereas the roentgenogram was taken with the patient in standing position. This will of course account for the position being apparently higher when he was operated on than when the roentgenogram was taken. The Roentgen-ray studies of a stomach do not correspond with Dr. Thomas' model nor with frozen sections. Our old idea of the position of the stomach as shown in the average anatomy has been proved to be entirely erroneous by fluoroscopic studies. It is not uncommon to find the lowest portion of the stomach 3 or 4 inches below the umbilicus and from a Roentgen-ray standpoint they are considered normal. The living anatomy is frequently different from the postmortem anatomy. There is a strong band of tissue running transversely in the upper surface of the lesser omentum, i. e., from the transverse fissure of the liver to the diaphragm and first portion of the stomach. In thirty-four fresh postmortems, we found this band and by suturing the stomach to this portion found that it would support from 14 to 16 pounds without tearing out. I am sorry that Dr. Thomas did not take up the indications. To my mind there is practically only one and that is, acute kinking of the gastroduodenal angle. If there is good motility of the stomach and it empties itself in normal time it is of very little significance whether it is 1 or 5 inches lower than normal. Another point to remember is that there is usually associated with gastroptosis a dropping of the other organs and by suturing up the stomach you will only be correcting one of many defects.

Dr. Harvey Smith, Harrisburg: I believe it would be of interest if either Dr. Thomas or Dr. Beyea would indicate in a general way what type of gastroptotic cases are benefited by the suspension operation. Reports of end-results following this operation show a rather large percentage of failure to relieve the indigestion associated with this condition. It does seem as though some of these cases are surgical and some are medical. Can this be determined before subjecting the patient to surgery?

Dr. Thomas, closing: While I believe strongly in his operation I cannot agree with Dr. Beyea in the view that the shortened, thin, filmy gastrohepatic omentum could continue to hold up the stomach filled with food. It is chiefly on this point that others have failed to agree with him and it is just this one point of disagreement that has led to the introduction of all the other operations for this condition. I have tried to find the thickened band of the gastrohepatic omentum near its attachment to the liver, said to be strong enough to hold up the stomach, but I could not find any that I thought had such strength. In my opinion, there must be some other means of support developed by the Beyea operation or it is not a rational one. I think that I have shown clearly from the normal anatomy that this operation cannot be done in any way without the development of a considerable area of adhesions between the stomach and liver which will be much stronger than the normal gastrohepatic omentum, however shortened, ever can be. There might not be developed, usually, as large an area of adhesion as was found in the case in which I had the privilege of reopening the abdomen (Case 4). If, instead of lying recumbent for four months after the Beyea operation, the patient had gotten out of bed in a few weeks there would probably have been a smaller area of adhesion between the stomach and liver. As for pain from adhesions it did not develop in any of my cases. The patients were all very well satisfied with the results of the operation. A study of its underlying anatomical basis and my clinical experience with the Beyea operation give me the conviction that it is the most rational and most effective operation yet devised for this condition.

Are We Civilized? A North American Indian proverb says: "Before the white man came there was no poison in the Indian corn." It now costs an average of nearly $100 per family to pay the liquor bill of the United States. Before the American occupation there were four saloons in Manila; now there are about three hundred. When we come into touch with weaker races we "do them" good. We spend every year twice as much for war as for education; and we put to death by mob violence on the average about one victim per day, and this average is not decreasing. Millionaires increase among us rapidly. These are evidences of decay which should make us pause when tempted to indulge in spreadeagle boasting.—*Pennsylvania School Journal.*

HOSPITAL ORGANIZATION IN RURAL PENNSYLVANIA *

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It would seem that if ever a subject allied to medicine had received thorough and scientific study that subject is the modern hospital. Journals of every description, medical and lay, from highly authoritative institution monthlies to the Broadway magazines, devote pages to the question until every housewife talks of calories and efficiency.

Pennsylvania, with the exception of its largest cities, has a population of about 6,000,000, for the sick and injured of which are provided 150 hospitals, some good, some bad and a great many indifferent. Within the year the legislature at Harrisburg listened to the statement, made by an official high in authority, that of these institutions 75 per cent. were incompletely equipped and were grossly mismanaged. Until a few months ago not over 15 per cent. of the hospitals outside of Philadelphia and Pittsburgh had adequately equipped laboratories and, with a few notable exceptions, trained pathologists in charge of the laboratories were completely unknown. Fully 90 per cent. of all our Pennsylvania hospitals other than those of the great cities have no trained laboratory worker whatever or have enrolled as "the pathologist" some member of the medical or surgical staff who possesses no knowledge of pathology beyond that requisite to the performance of the simplest laboratory tests.

In modern hospital parlance, in speaking of the laboratory and laboratory methods, let not the thought be narrowed to the microscope alone, but in the broader sense include all diagnostic procedures in biologic chemistry, in serology, in roentgenology, in cystoscopy, etc.

More or less satisfactory Roentgen-ray departments exist in 75 per cent. of our rural hospitals, but not more than 20 per cent. of them are adequately provided with apparatus for fluoroscopy or therapy, the vast majority being equipped only for gross picture work of the bones and joints. Last winter an aged and decrepit Hupmobile made a flying tour of the eastern section of the state, visiting many of our rural hospitals and leaving chagrin and consternation behind. As a result a great change has been taking place in many of these institutions. Along with other reforms, Roentgenray departments have been added and old ones are being replaced under the management of more competent men, while pathologic laboratories are being introduced generally with trained pathologists or at least full-time technicians in charge.

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* Read before the Section on Surgery of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 19, 1916.

It is hoped that these new departments will succeed, but in this connection one recalls that the staff members of most rural hospitals know little about pathologic work and care less for it. In many an institution where a younger member of the staff becomes enthusiastic and attempts to develop something of the laboratory, far too often he receives such little cooperation or his efforts are damned with such faint praise that he speedily becomes discouraged. Unless every member of the staff shows an interest by using the laboratory, it will be difficult to make rapid progress along this direction. Hospital reforms are, however, developing rapidly in rural Pennsylvania, for which we have greatly to thank the aggressive and highly efficient president of the Bureau of Medical Education and Licensure.

Recently the attention of those hospitals desiring to be placed on the approved list of institutions eligible to give the intern year has been called to the necessity of providing adequately equipped and scientifically conducted laboratories, with special departments of anesthesia, roentgenology and obstetrics. These demands have now been made mandatory by the attorney general and are to be enforced. More recently still has the Bureau of Medical Education emphasized that it is the desire of the bureau that each hospital regard itself as an associated and integral part of the medical teaching of the state.

The bureau, furthermore, informs us that it is its purpose to attempt to stimulate all our hospitals to be active and efficient contributors in the collection and correlation of accurate and easily accessible data in reference to the treatment of the sick. To this end have been made detailed suggestions as to uniform and practical methods of case record keeping, and these have been sent to all rural institutions. These measures, following the establishment of the compulsory intern year, have done more to raise hospital standards in Pennsylvania than have the combined results of all our other institutional reforms of the past fifty years.

Our needs in rural Pennsylvania are clearly indicated, but, discouraging as it appears, it is as yet a far cry from the indications to what is possible of early accomplishment. Philadelphia with a population of a million and a half has sixty hospitals and hospital property representing $45,000,000, while 6,000,000 residents of rural Pennsylvania are served by 150 hospitals, less than half of which are acceptable. The average amount of disease among that 6,000,000, if it is to be treated by modern, scientific methods, can keep three times the number of institutions now provided constantly filled.

In this connection I wish to speak of a method of rural hospital organization of comparatively recent development in this country, but one most practicable and scientific, several examples of which are now to be seen in operation in our own state.

An English surgeon returning home from a tour of inspection of our American clinics, on being asked what factors accounted for the surgical supremacy of the Western world, answered that they were chiefly two in number, and their names were Will and Charley. If I were asked what is the Mayo's chief contribution to medicine, I would say, from an intimate knowledge of the men and their methods, that it is their plan of hospital organization. Nowhere in the world is there such a perfectly systematized institution for the diagnosis and treatment of disease or for the prosecution of scientific research as now exists in a little town in rural Minnesota; and I pause for a moment to pay tribute to its founder, my good friend and former kind and distinguished chief, Dr. W. J. Mayo.

The fixed staff, composed of specially trained and carefully selected men, each with certain work in which he is an expert to perform and all working to the accomplishment of the "grouped diagnosis," is the fundamental idea at Rochester and, in a small way, is eminently applicable in the organization of the rural hospital. Such a staff should be organized on a salary basis, though this is not always practicable. There are, however, certain positions, which, to secure the highest efficiency, should be maintained by fixed salaries, those of the pathologist and chief anesthetist especially. If properly organized such a scheme will be productive of greater efficiency than can possibly result from any other method. There are now in rural Pennsylvania several examples of hospitals organized along these lines and their success is unquestioned.

Efficiency is a greatly overworked and frequently abused term. As applied to the hospital, it has been measured in devious ways — per capita cost, average length of stay in the hospital, mortality rate, etc. Any of these may be a factor in or the result of, but rarely the measure of, efficiency. Organization is first and last the paramount factor and the thoroughness and completeness with which the work is done should be the gage. There is a great tendency to measure hospital efficiency by per capita cost, but this tells nothing except as applied to the particular institution under consideration. The purpose of the hospital is to treat and care for the patient, and the end result should be all that modern skill and knowledge, supplemented by the necessary facilities, can accomplish at the hands of carefully selected individuals composing the organization. The organization is the power that produces the results.

Appointments to the staff of any hospital should be made only on merit. Especially should this be emphasized in selecting men to handle the work of the specialties. Recently the trustees of a rural Pennsylvania hospital, in all wisdom, issued a ruling that candidates desiring to be admitted to the surgical staff of the institution of which they are directors must show evidence of having taken a postgraduate course in surgery of *at least two months'* duration.

Specific requirements of even that magnitude are rarely necessary in our rural institutions, and eligibility to operate in the vast majority of Pennsylvania hospitals demands no special training. No hospital more than the rural hospital and no class of patients more than those of the rural sections of any state will so profit by the passage of a federal law demanding, as has so often been urged, a special license for the practice of surgery.

There are in rural Pennsylvania, at some distance from each other, two hospitals of equal size, modern, up to date and completely equipped. Both are situated in manufacturing towns of approximately equal population, and are the only institutions in their respective communities. Each has a sound and adequate financial basis. The first has no regular staff, while the other has a salaried full-time staff residing on the premises and giving its undivided attention to the institution. The second hospital accomplished more work in the first year of its operation than did the other during its fifth year. The comparison is absolutely fair; the discrepancy is due entirely to the faulty methods of staff organization in the first institution.

The success of the rural hospital will depend largely on the education of the people and to a great extent on the training of the general practitioner on whom rests the initial responsibility in the making of the diagnosis, or at least of recognizing the need of hospital care of the patient under his observation. To the general practitioner are well-organized rural hospitals bound to be of great assistance from an educational standpoint. To them the laboratories, the Roentgen-ray department, the cystoscopic room and the operating room should be open that they may be offered a form of invaluable teaching that before the advent of a hospital in their community was impossible for them to secure. There may be revealed to them the marvels of bacteriology, of serology, of medical chemistry, of fluoroscopy, cystoscopy, etc., that they may realize that these are not matters beyond their ken and reserved only for their more erudite brethren of the city, but are perfectly understandable and can be of the greatest practical use to them in their rural practices. Let the clinic benches of the operating room be reserved for them at all times that they may acquire a knowledge of living pathology and thus tremendously change their viewpoint of surgical lesions generally. Permit them to realize the danger of the neglected suppurating process, whether it be in the appendix or in the medulla of a bone. Let them realize as the result of actual demonstrations in the operating room that gastric and duodenal ulcers are not rarities, that gallbladder disease, either with or without stones, is exceedingly common, and that the mythology of "acute indigestion," "gastralgia" and what not, the terms they have applied to these conditions, have no place in modern medicine. That there is tremendous need for such education is illustrated by the fact that a short time ago two patients were permitted to die from perforating duodenal ulcer within the shadow of a well-equipped hospital, while about the same time a patient with the same condition was removed from a train by a Pullman conductor and rushed to the same hospital, where his life was saved. Surely we must not permit railroad men to become better diagnosticians than ourselves.

CONCLUSIONS

The principal factors in the success of the rural hospital are dependent on the following: 1. A clearly defined need for a hospital in the community. 2. The construction of an adequate and well-equipped institution. 3. A sound financial basis. 4. A competent and efficient administrator who sees to the maintenance of high standards in the staff. 5. A broad sensible policy, giving the hospital's executive full authority and responsibility in which he has the complete support of the trustees. 6. Thorough and scientific care of the sick. 7. Individual investigation of the financial resources of all patients and discouragement of indiscriminating charities. 8. An efficient system of purchasing, so arranged under the direction of the institution's superintendent, that he may be free to take advantage of all changes in price.

When these fundamental principles thoroughly enter the minds of our trustees and the tremendous need of more and better hospitals in "up-the-state" Pennsylvania, becomes apparent to our legislators and public-spirited philanthropists, then, and not until then, will our rural sections receive hospital service, scientific and adequate and in keeping with our boasted twentieth century medical progress.

DISCUSSION

Dr. T. B. Appel, Lancaster: I am in a sense sorry that Dr. Foss was not able to complete his paper, in that very often in the conclusion you strike the kernel. I gather that there were some points in the conclusion that would have been well worth listening to. In opening the discussion of the very important question of a hospital for the rural districts I wish to emphasize the fact that we should all agree in the importance of the development of the laboratories; with the fact that until recently a modern small town hospital was not efficient, and also with the tribute that he paid to the Bureau of Medical Education and Licensure in the inspection and criticism of these same hospitals that receive state aid. I wish to say personally in relation to the hospital with which I have connection that the inspection there has made the efforts of the staff to increase the efficiency of that hospital so very much easier than before we were told where we were deficient.

In connection with this paper one point might be brought out and a little further developed, that is the point of efficiency of the hospital does not end entirely with the end results of the patient and I think that this work is also in line with the work that this same bureau is doing. The modern hospital, particularly in a small town, is in a sense an educational institution for the profession. We require now in this state a fifth year of the medical education as an intern before that man can practice. I think in these small towns, say where a hospital in the country district serves the population in a town of 50,000 or 100,000, which is about the limit for a small 100-bed hospital, these institutions should become centers of education, postgraduate, if you call it, for the profession in that neighborhood, that they may have an opportunity to see the advantages or to use the advantages of modern hospital care for patients. Now there are a great many of the men who practice in rural Pennsylvania who cannot go at stated intervals to take post-graduate work, but if in a well-conducted hospital they can have the opportunity of seeing the results of the nursing, of having the results of the laboratory work done under the direction of the staff, of the Roentgen ray work, of the pathological and the pure clinical laboratory work it will aid them and increase their power to practice their profession in their own private practice outside of the hospital wall. I think in future development of these small town hospitals that this point should be held very much to the front as of great importance. I do not want to bring that forward to the effect that it should be an educational institution to the exclusion of perfect and efficient work. Then another point, hospitals need further incentive and development in their medical service. In many cases the service is 75 to 80 per cent. surgical. We need education to bring forward the hospital advantages in medical cases and not allow the hospital service to be utilized disproportionately by the surgical cases.

Dr. A. R. Allen, Carlisle: Why I should continue this discussion is beyond my comprehension. I am a country doctor in a rural community and have not had the experience that some other men have had and who would be able to tell you more than I can. Notwithstanding, some things in regard to this proposition come to me. As a member of the old Pennsylvania State Examining Board on duty before the present bureau, I want to say that the Bureau of Medical Education and Licensure is doing more to bring the hospitals up to a high standard than all the work done heretofore in any other state. I want to compliment the president and the members of the bureau for the great work which they are doing in increasing the efficiency of the young medical men before their license to practice medicine is granted. I do not know much about hospital construction. In equipment we depended on what Dr. Baldy advised. Sometimes we were a little puzzled but he was very liberal with us and in the interpretàtion of the law. The hardest thing we had to overcome was to get a pathologist. There are none in Carlisle. I think the modern hospital, as Dr. Appel and Dr. Foss stated, is an educational center and the medical man who would profit should follow his cases from the home to the hospital and if it be a surgical case should see the operative findings on the operating table. This will increase his efficiency. It is necessary for these men on the staff to have not only ordinary ability but they must try to excel, and if they do not show results, competent men should replace them. I heartily approve of all the methods taken to raise the medical standard and if they are made a little bit harder I will not object.

Dr. W. H. Walsh, Philadelphia: I wish to express my keen appreciation of the masterly paper read by Dr. Foss. Those of us who are vitally interested in the efficiency of hospital management readily appreciate the importance of an expression of such high ideals before this society. I, also, feel that Dr. Baldy has performed a great pioneer service for the hospitals of Pennsylvania. Indeed, he has created the first minimum standards that have been applied to hospitals in this or any other state, as far as my knowledge goes. Unfortunately, it is a sad but true fact that many of the stumbling blocks encountered in this work are created, either consciously or unconsciously, by the members of the hospital staffs, men who certainly should have realized years ago the necessity for the recommended improvements. In reference to the method of appointing staff officers, I would say that a very vital spot has been ably handled by Dr. Foss. It is all too frequently the case that mediocre men are appointed to vacancies on a hospital staff solely because of the friendship of the appointing power, without any consideration whatsoever as to their ability or professional fitness. I have seen patients neglected and others suffer unnecessary pain and discomfort on account of the incompetency or the disinterestedness of staff members, who should never have been appointed. Until many hospitals realize that the only qualifications for hospital positions are character, capability and proficiency, those hospitals and their managers will continue to condone inefficiency, and unskilful medical and surgical attendance, if not actual malpractice.

Dr. Frederick L. VanSickle, Olyphant: While everybody has thrown many bouquets to the Bureau of Medical Education and Licensure today, I wish to add my testimony to the effect that Drs. Baldy and Maddux made us jack up when they visited our hospital. They notified us that we must have an efficient pathologist and it became a question where to find him. I felt the solution should be with the state board to a certain extent.

I think a rural hospital today is confronted with the question, which has not appealed to it so strongly in the past, in relation to the newer developments of surgery and medicine which are to come under the head of sociologic or workmen's insurance. If efficiency is going to be of any value it is when it is going to count in dollars and cents with employers. They are trying to get men and women in industrial cases, promptly cured, but it will appeal to the sense of the manufacturer, the mine and mill owner when he is willing to pay physicians well to get the sick man cured. Therefore the efficiency of the smaller rural hospital must be increased and the men doing the work must be up to the standard. Hospitals should be thoroughly equipped and should have good men on the staff.

Dr. J. B. McCreary, Shippensburg: I speak as an internist. We can get a man with a dislocated shoulder to go to the hospital for three weeks. We will have a fight with that same man to take his child with typhoid fever to the hospital for treatment. There should be a more thorough education of the people that the hospital is not only for surgical cases but far more important in the treatment of fevers and conditions that are prolonged in the poor home, whereas the surgical cases often could be just as well taken care of at home. Most of us do not use our hospitals as much as we should for our internal cases but rush off our surgical cases to the hospital.

Dr. Joseph B. Hileman, Harrisburg: It has been a bit pathetic to me to notice the number of medical students who are fired with ambition to become major surgeons and gynecologists. As interns their great interest is in the operating room. I think that as a result their regard for minor surgery is rather casual. Too often in the dispensary the anxiety is to see how rapidly wounds can be dressed and the patients dismissed. It seems to me that in our schools minor surgery should be looked on as a minor specialty and that students should be impressed with its importance and their enthusiasm aroused to do it very well. In the dispensaries their work should be scrutinized and a high standard maintained. To permit nurses to dress wounds in dispensary cases reacts on interns in such wise as to tempt them to condescend to the work, while it is their legitimate opportunity. Few of them are temperamentally fitted to become major surgeons. There is an immense amount of minor surgery which ought not to be slighted by them later as practitioners but which ought to be done in the most alert and thorough manner.

Dr. John B. Roberts, Philadelphia: I think Dr. Foss brought out forcibly three things often not recognized in hospitals in cities. Three things must be obtained for efficiency. First, a permanent medical dictator. Somebody must be on duty as a medical man and have control from January 1 to December 31. That is the first thing impressed on me by the Mayo system and well brought out by Dr. Foss. The damnation of small and large hospitals is the fact that nobody is boss and every man who comes on duty every few weeks carries on his work and gives orders something differently. Second, a general form of action and treatment must be adopted, a standard which everybody must obey. I do not care whether it is a prominent surgeon or physician, or whether a prominent member selected by the staff itself as chairman or president shall give orders to which the other men are obliged to submit. It may be a medical woman who controls, or it may be a good first-class nurse. What is needed is a permanent dictatorship. Next, there must be generalized or standard method that the four, six or ten men must agree to follow—a standard set up by the man who has charge, whether he is elected as is the president of the United States, or obtains the command by inheritance, or by money, as has the Carnegie Fund in some instances. A permanent medical director; a standard; and, thirdly, cooperation between the men who must then show loyalty to the standard and the boss. To effect these reforms in American hospitals, the time must arrive when all the medical officers from intern up to attending physician and surgeon must be given a money reward. It may be small but in these days money counts with all—doctor, lawyer, beggarman, thief and doubtless also with Indian chief.

Dr. J. M. Baldy, Philadelphia: I would not like any misconceptions to go out from statistics given by Dr. Foss. Although the situation in Pennsylvania hospitals in the past has not been what it might have been, I do not believe any other state in the Union is any better, if as well off. I think we ought to be ready at all times to bring this out prominently (for this discussion is becoming a national one) and not allow any stigma to rest on our own state. If I can judge from the testimony of her own physicians and surgeons I should say that New York is worse off than Pennsylvania.

I have been very much gratified in some of the directions this discussion has taken, particularly the educational feature and the unequal development. There has been proposed to you the taking up of the question of medical education and in your wisdom a committee has been appointed known as the Committee on Medical Education. In that connection Dr. Roberts had proposed postgraduate instruction to physicians in their own homes in order that they could have it at their doors constantly. The solution of that proposition lies in the hands of the hospital in the community. The responsibility of making that education efficient by bringing it home not only to the doctors, but to the rest of the community, rests with the members of the staff of the hospital. If they rise to the opportunities that have now come to them (the standardization of their institutions) we will have the best of results. As medical men we have a unique opportunity to solve this difficult subject and I feel that if we do not measure up to these responsibilities the shame of it should come on our own heads. The unequal development of hospitals is one of the crying evils of the state. We found in our inspection that from 75 to 80 per cent. of the work done in the rural districts was surgical and that 75 to 80 per cent. of this was emergency surgery. I would like to ask how the Bureau of Medical Education and Licensure can send an intern into such a hospital for his fifth year? If this condition is not altered such institutions must be satisfied with a credit of a few months on their service and consequently be classified as special hospitals. That is what it will have to come to in seeing that the intern gets a competent internship rounded out as the law contemplates. The medical men seem to have laid down on their job and have handed over to those of us who have surgical instincts, practically all of the institution; the service belongs to them for the care of medical cases just as much as it does to those of us who are surgeons. The development of the medical specialties in the hospitals throughout the state should be pushed. I am very glad to emphasize that which has been brought out by some of the gentlemen who have realized their shortcomings in this respect. What the bureau has attempted to do has been simply basic, as a beginning.

It would be practically impossible to bring about standardization in an institution which is not properly and efficiently officered and equipped. The one thing we have laid stress on is the personnel of the various laboratories; a good man who will attend can do magnificent work with indifferent quarters and we will be charitable to any institution which furnishes a competent personnel. We will be patient while they are gathering equipment, but we will not tolerate and we will not be charitable to an institution which does not try to improve the personnel of the laboratory.

Dr. Foss, closing: I now feel that my paper has been worth while, for one reason at least if for no other, and it is that it has succeeded in bringing out a discussion during which there have been many generous expressions of appreciation of the work of the Bureau of Medical Education and Licensure and particularly of the efforts of the bureau's worthy president. We owe more to him for what has been accomplished in the past few years in improving hospital conditions in this state than to any other one man or group of men.

THE CLINICAL INTERPRETATION OF THE WASSERMANN TEST *

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The interpretation which we are justified in putting on the results of the Wassermann test depends entirely on its reliability as a diagnostic test for syphilis. Hence its reliability should be first considered.

Our experience with syphilis has been, for the most part, with the later stages; so only a passing word in regard to the early stages is necessary.

It is generally conceded that the reaction is unreliable in the very early primary stage, and is often negative as late as two weeks after the appearance of the chancre. However, even here, one may obtain a positive reaction a few days after the chancre appears. Throughout the primary and secondary stages the test becomes increasingly more reliable, and it is in the secondaries that it attains its greatest degree of specificity. It is of great value in tertiary syphilis because of the great diversity of symptoms caused by tertiary syphilitic infections. But it is in the so-called parasyphilitic diseases that we have been able to treat, with some measure of success, patients whose cases would have been regarded as hopeless, had not the Wassermann test of blood or spinal fluid demonstrated their luetic nature.

In latent syphilis the diagnosis has been made, or perhaps it would be more correct to say that the suspicion of syphilis has been entertained, by exclusion, and the diagnosis made by a positive Wassermann reaction and confirmed by the results of specific treatment.

It is well known also that the reaction is much influenced by specific treatment. A positive reaction is often temporarily converted into a negative one by a single dose of salvarsan. We have among our cases a case of pyloric obstruction with a triple positive Wassermann reaction, which was rendered negative after three days treatment, with inunctions and sodium iodid. In latent syphilis it is also well known that one may convert a negative Wassermann into a positive Wassermann by active treatment, as in the so-called provocative dose of salvarsan. The earlier the stage at which one starts to treat the disease, the more profound and permanent seems to be the effect on the reaction of the blood serum and cerebrospinal fluid. It may be said, in this connection, that a negative Wassermann reaction means neither that a previous diagnosis of syphilis was incorrect nor that the patient is cured of syphilis. Repeated examinations at intervals, without treatment, are necessary in order to be assured that a cure has been effected.

We have found the Wassermann test the most valuable single test for the existence of syphilis, and its importance in our experience outweighs that of all other tests combined. While we have used the luetin test in only a few cases and hence have no very definite report to make on its value, we may at least report one case in which a diagnosis of syphilis was made by means of a

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* Read at the General Meeting of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 21, 1916.

positive luetin test in spite of a negative Wassermann of the blood serum. In this case specific treatment was followed by considerable clinical improvement.

In cerebrospinal syphilis the existence of a positive Wassermann of the blood or spinal fluid, either with or without the aid of a provocative dose of salvarsan, has run parallel to the increased cell count in the spinal fluid. In very late manifestations of nervous syphilis we have in two cases been able to demonstrate a positive Wassermann in the absence of an increased cell count. One of these cases was undoubtedly a case of tabes dorsalis, while it must be admitted that the specific nature of the other has not been shown by the results of treatment.

We have found the globulin content of the cerebrospinal fluid to be about as valuable and delicate an indication of syphilis as the cell count, and is increased whenever the cell count is increased. Whenever it has been possible we have observed the effect of specific treatment sometimes with mercurials and iodids and sometimes with the combined treatment with these remedies and salvarsan. In a few cases we have made the diagnosis and given specific treatment in spite of laboratory findings. In these cases the results have been disappointing. In one case of vertigo, where specific treatment failed, the treatment of a marked coexistent hyperchlorhydria afforded a considerable amount of relief.

A few points in the interpretation of the Wassermann reaction can best be set forth by the description of a few illustrative cases.

Case 1.—J. K., aged 23, laborer, single, came to the office complaining of difficulty in talking, swallowing, and closing the eyes. Onset was seven weeks before and the development had been steady from the beginning. There was no history of primary or secondary lesions and the patient had no suspicion of his true condition. There was nothing to excite particular comment in the physical examination except the existence of a slight ptosis of the upper eyelids, especially the left. The Wassermann reaction was negative in both blood serum and cerebrospinal fluid. Cell count of cerebrospinal fluid was increased. After giving 0.4 gm. of salvarsan intravenously, the Wassermann reaction was positive in the uninactivated blood serum but negative in the inactivated serum. Marked improvement after antisyphilitic treatment. Here the suspicion of syphilis was strengthened by the presence of an increased cell count, further strengthened by a positive Wassermann reaction and the diagnosis practically clinched by the results of treatment.

Case 2.—Mrs. S., aged 40, married, housekeeper, complained of a heaviness in the epigastrium for a year past, with occasional vomiting, sometimes of large amounts of food. With the exception of a history of several miscarriages there was nothing in her history to indicate anything but an ordinary pyloric stenosis, which the Roentgen-ray examination revealed. After a positive Wassermann was found, the patient was markedly benefited and is still being benefited by mercurial inunctions and iodids. No operation.

Case 3.—Mrs. F. R., aged 26, married, housekeeper, came into the Columbia Hospital complaining of symptoms of a gradually developing intestinal obstruction. A mass was found in the right side of the abdomen about as large as a tennis ball. Operation disclosed a gumma. Wassermann reaction positive. Marked improvement under antisyphilitic treatment. This patient also was ignorant of infection.

These two cases illustrate the value of the Wassermann test in cases thought to be operative.

Case 4.—Mrs. A., aged 36, married, housekeeper, complained of dizziness, ataxia and ringing in the ears for a year past. She had a fairly typical history of syphilis, but the diagnosis was delayed because of the dependence placed on a negative Wassermann reaction of the blood serum. The Wassermann reaction was positive in the cerebrospinal fluid, however, and the cell count was 30 to the cubic millimeter. Salvarsan administered intravenously together with the old methods of treatment have practically brought about a cure. Here also there was no history of infection, nor in the next two cases.

Case 5.—Mrs. E., aged 41, married, housekeeper, complained of peculiar attacks of "near-unconsciousness," of which she had had four in all. One attack came on two years before she came for diagnosis, two on the same day two weeks before and the last one on the day she came to the office. These attacks came on suddenly, never lasted more than two or three minutes and left as suddenly as they came. Otherwise her health had always been perfect, but she had been married thirteen years and never had been pregnant. Wassermann was found strongly positive in two different laboratories. Although it has been five months since patient first came under observation, she has not had any attacks since the institution of specific treatment at that time.

Case 6.—Mrs. Y., aged 45, married, housekeeper, complained of numbness in the legs and left hand and also of cramps in the legs for two years past. Wassermann tests of the blood serum and cerebrospinal fluid were negative, and the cell count was not increased. The luetin reaction was positive and a positive diagnosis of syphilis was made on this reaction with the aid of the history. Patient has been considerably improved by specific treatment. Here the Wassermann reaction seems to have failed to show the true condition.

Case 7.—Mr. J. O., aged 33, married, electrician, complained of a constant pain in the left hip for nine months past. This patient gave a very definite history of a primary sore twelve years before, followed two months later by a sore throat, mucous patches and a rash on his arms. His wife had had three miscarriages within three years, two at three months and one at six weeks. One child aged 5 years has the marks of congenital syphilis and another at the age of 7 years is living and well. Just why the Wassermann test was negative in a case like this, we do not know, but such was the case.

CASE 8.—Mr. F. S., aged 34, married, stationary engineer, complained of vertigo of three years' standing but worse for the three months immediately preceding, associated with a closure of the left eustachian tube. He had been married thirteen years, but his wife was never pregnant. Wassermann reaction was negative both in blood and cerebrospinal fluid, in the former even after a provocative dose of salvarsan. Luetin test was negative, cell count was two to the cubic millimeter. We have been unable to follow this patient for a very long time, but he certainly was not benefited by one Swift-Ellis treatment and several weeks of mixed treatment.

I desire particularly to call attention to the fact that in only one of these cases of syphilis had the patient any suspicion of his condition. This we have found to be true in many cases.

SUMMARY

1. The Wassermann test, while not absolutely certain, is the most valuable laboratory aid in the diagnosis of syphilis.
2. A negative test in suspected cases should be repeated before the suspicion is dropped, often after a provocative dose of salvarsan.
3. A negative reaction may be due to previous treatment, which has not been curative.
4. The influence of specific treatment on clinical manifestations of syphilis tends to show the reliability of the Wassermann test.
5. The existence of a positive Wassermann reaction should not be construed to mean that syphilis is the only condition present which requires treatment.

4634 Fifth Avenue.

MODERN DIAGNOSIS AND RESULTS CLINICALLY, SEROLOGICALLY AND SOCIOLOGICALLY OF SYPHILIS

TREATED WITH SALVARSAN AND ITS SUBSTITUTES *

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It is generally recognized that the diagnosis and treatment of syphilis have been revolutionized during the past decade. Indeed research and discovery have added so much to this important domain of medicine that syphilographers have been oblighed to rewrite textbooks. Moreover, medical literature is already so overburdened with articles on the treatment of syphilis with salvarsan and neosalvarsan, controlled or not by the Wassermann reaction, that one naturally hesitates to add more to the syphilitic maelstrom. Our sole motive in the presentation of this paper is to state our experience to date, clinically and serologically, in a study of 510 patients collected from private practice and the Department of Genito-Urinary Surgery of the Philadelphia Polyclinic Hospital; more particularly to direct attention to the importance of the heroic treatment of syphilis in its early stages in view of the realism of the dictum, "therapia sterilisans magna," propounded by Ehrlich, for it would appear that, by the intensive administration of salvarsan or its substitutes in the primary and even the secondary stages of the disease, cure may be effected by this drug alone, to the exclusion of mercury. Some of the patients treated received their initial dose of salvarsan as long as five and one half years ago, and although we are not bold enough to declare that even that period furnishes sufficient time to warrant a final opinion as to the absolute merits and end-results of this drug in the treatment of syphilis in all its manifestation, we do feel that sufficient time has elapsed, in the light of our experience, to justify certain deductions. In conjunction with this report, we desire also to direct attention to certain facts of importance relative to the modern diagnosis of syphilis, also, and not the least, to acquaint the profession and laymen with conditions attendant upon the treatment of this disease that sociologically should command the serious thought of citizens universally.

DIAGNOSTIC CONSIDERATIONS

It is a well-recognized fact that today more than ever before, the proper, best and most effective treatment of syphilis rests upon the earliness of diagnosis. That the disease in the primary stage, especially before the occurrence of a positive Wassermann reaction, can be eradicated by one or more injections of arsenobenzol alone is unquestionable. Thus in order to make the correct diagnosis of suspicious sores at the earliest possible moment, the dark field illuminator for the demonstration of the *Treponema pallidum* is indispensable, and therefore mandatory for the modern practice of syphilology.

It has been made a routine, both privately and at the hospital, that the sore of each patient, female or male, regardless of the general characteristics of the lesion, be examined with the dark field illuminator for treponemata. Coincidently, if the treponemata be not found, a specimen of blood is taken for the Wassermann test. If the *Treponema pallidum* be found the patient is urged to have immediately an injection of salvarsan, provided no contraindication exists. Indeed we regard the patient with a chancre just as much an emergency case, so far as urgency of treatment is concerned, as the victim of an acute fulminating appendicitis.

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* From the Department of Genito-Urinary Surgery and Polyclinic Laboratories.

* Read at the General Meeting of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 21, 1916.

The dictum not to start treatment until the diagnosis is surely established is just as imperative today as it was a decade ago, but fortunately we are enabled by either the dark field microscope or the Wassermann test to make that diagnosis earlier. Therefore, passively to await the advent of secondaries to confirm the diagnosis should be sufficient ground for suit for malpractice. The diagnosis must be made if possible when the patient presents himself with a suspicious though possibly a typical sore by the dark field illuminator, if necessary by repeated examinations. In other words, time should not be procrastinated until the Wassermann confirms that the sore is a chancre, since often the Wassermann may not appear positive until the second, third, fourth or even fifth week of the chancre. Actual statistics in our work show that the dark field illuminator resulted positively in 80 per cent. of chancres on the first or second examination. In a series of sixty-two chancres the *Treponema pallidum* was demonstrated in forty-eight before the Wassermann became positive, while in fourteen, negative with the dark field microscope, the Wassermann revealed the true nature of the infection.

WASSERMANN REACTIONS

In our list of sixty-eight cases of chancres, the Wassermann reaction was found positive in 8 per cent. on the third day, 3 per cent. on the fourth day, 6 per cent. on the seventh day, 13 per cent. in the second week, 16 per cent. in the third week, 32 per cent. in the fourth week, while 22 per cent. resulted negatively.

In untreated secondary and tertiary cases exhibiting active lesions we were able to obtain a positive Wassermann in 100 per cent. of the cases. In the latent form of the disease it has been necessary, not infrequently, to resort to the provocative test in order to elicit a positive reaction. On the contrary, to the best of our knowledge and belief, we have never obtained a positive Wassermann reaction in a definitely known nonsyphilitic patient.

CHANCRES

From Table 1 it will be seen that in a majority of the cases, two or three doses of salvarsan or neosalvarsan have been sufficient to eradicate the clinical evidence of the chancre, and a negative serological report for a period extending from one month to over three years.

There were five cases where the patient received only two doses of either salvarsan or neosalvarsan, or one dose of each. One patient with a chancre of one week's duration, Wassermann negative, dark field positive, received two doses of salvarsan and the Wassermann remained negative for a period of three years. Three patients were two weeks old: In one case diagnosed by the dark field alone, as the Wassermann reaction never became positive, the patient received two doses of salvarsan and still gave a negative reaction one year after the last injection. The second patient, with a strongly plus Wassermann, received two doses of salvarsan, followed by a negative Wassermann three years later. The third patient, with a medium plus Wassermann, received one dose each of salvarsan and neosalvarsan and a negative Wassermann was observed eight months afterward. The fifth patient receiving two injections, had a chancre of three weeks' duration, diagnosis made by the dark field illuminator, received two doses of neosalvarsan and showed a negative Wassermann four months after the last injection. It is to be remembered in this connection that the Wassermann reactions were taken twice a month when it was possible, but a great many of the patients disappeared after a few months' observation, and as a result we are unable to give the Wassermann results to date in many instances. One case on the chart, a man presenting three sores, is noteworthy. The dark field showed the *Treponemata pallida* in each sore. Wassermann was negative. He received one dose of neosalvarsan, his sores healed and his blood continued negative, although at present the patient is temporarily unavailable for observation.

In six cases in our series of chancres, the patients received three doses of either salvarsan or neosalvarsan or a combination of the two, in each of which the Wassermann test resulted negatively. In one case, duration of three days, dark field positive, Wassermann negative, patient received one dose of salvarsan and two of neosalvarsan, and the Wassermann continued to be negative two years after the last injection. In another case, duration of two weeks, Wassermann weakly positive, patient received one dose of salvarsan, and two doses of neosalvarsan. The Wassermann was negative two years after the last injection. In two cases, duration of three weeks, Wassermann negative in one, and weakly plus in the other, patient received three doses of neosalvarsan, and was followed by a negative Wasserman for three years in both cases. Two cases, duration of four weeks, the first patient receiving three doses of salvarsan, and the second three doses of neosalvarsan, were both followed by a negative Wassermann one month after the last injection. Neither patient returned for further observation, notwithstanding explicit directions to that effect.

TABLE 1.—CHANCRES

Case	Duration	Dark Field		Wassermann Before Treatment					Salvarsan Dosage and Wassermann Controls						Neosalvarsan Dosage and Wassermann Controls										Subsequent Wassermann Results											
																									Months						Years					
		1st	2d	1st	2d	3d	4th	5th	1	W	2	W	3	W	1	W	2	W	3	W	4	W	5	W	1	2	3	4	6	8	1	1½	2	3	4	5
384	4-7 da.	+	..	—	—	—	—	..	+	—	+	—	..	..	..	..	..	..	..	..	...	...	...	...	...	...	...	...	...	...	...	...	...	—		
7863	2 wk.	..	..	..	..	S+	..	..	+	M+	+	—	..	..	..	..	..	..	..	..	...	...	...	...	...	...	...	...	...	...	...	...	...	—		
1473	2 wk.	+	..	—	—	—	—	..	+	—	+	—	..	..	..	..	..	..	..	..	...	...	...	...	...	...	...	...	...	...	—					
2707	2 wk.	—	+	—	M+	..	..	..	+	M+	..	..	..	..	+	—	..	..	..	..	...	...	...	...	...	...	...	...	...	—						
2083	3 wk.	+	..	—	—	..	..	..	..	..	..	..	..	..	+	—	+	—	..	..	...	...	...	...	...	...	...	...	—							
578	1-3 da.	+	..	—	—	—	—	..	+	—	..	..	..	..	+	—	+	—	..	..	...	...	...	...	...	...	...	...	...	...	...	...	—			
544	2 wk.	—	—	..	—	W+	..	..	+	..	..	..	..	..	+	..	+	—	..	..	...	...	...	...	...	...	...	...	...	...	...	—	—			
492	3 wk.	+	..	—	—	—	—	..	..	..	..	..	..	..	+	—	+	—	+	—	...	...	...	...	...	...	...	...	...	...	...	...	...	—		
2179	4 wk.	+	..	..	..	..	W+	..	+	..	+	..	+	..	..	..	..	..	..	..	...	...	...	...	—											
R. McA.	3 wk.	—	—	..	..	W+	..	..	..	..	..	..	..	..	+	..	+	W+	+	..	...	...	...	...	—	...	...	...	...	...	...	...	—	—		
C. J. B.	4 wk.	+	..	—	—	—	—	..	..	..	..	..	..	..	+	..	+	..	+	—	...	...	...	...	—											
1452	2 wk.	+	..	..	—	S+	..	..	+	S+	+	M+	+	W+	+	—	..	..	..	..	...	...	...	...	...	...	...	...	...	...	...	...	—	—		
1721 (lip)	3 wk.	..	..	..	..	M+	..	..	+	S+	+	S+	+	M+	+	—	..	..	..	..	...	...	...	...	...	...	...	...	...	...	—					
C. D. N.	2 wk.	+	..	—	—	—	—	..	..	..	..	..	..	..	+	..	+	..	+	M+	+	...	+	—	—											
1651	4 wk.	..	..	..	..	..	S+	..	+	S+	+	S+	..	..	+	W+	+	W+	+	—	...	...	...	...	...	...	...	...	...	...	...	—				
1004 (3 sores)	4-7 da.	+*	..	—	—	—	—	..	..	..	..	..	..	..	+	—																				
G. B.	2 wk.	..	..	..	S+	..	..	..	+†	..	..	..	..	..	..	..	..	..	..	..	...	...	...	...	...	...	...	—	...	—	—	—	—	—	—	—
655	4 wk.	—	..	W+	..	..	..	..	+	..	+	..	..	..	..	..	..	..	..	..	...	...	...	...	...	...	...	...	...	...	...	...	...	—		
									Arsenobenzol (Polyclinie)																											
									1	W	2	W	3	W	4	W	5	W	6	W	7	W														
2824	4 wk.	..	..	..	..	..	S+	..	+	..	+	S+	..	..	..	..	..	..	..	...	..	...			...	...	...	...	—							
2828	4 wk.	..	..	..	..	..	W+	..	+	—	+	—																								
3003	4-7 da.	—	..	M+	..	..	..	..	+	..	+	..	+	—																						
2890	2 wk.	+	..	..	W+	..	..	..	+	..	+	..	+	—																						
2308	3 wk.	+	..	..	..	M+	..	..	+	..	+	..	+	W+	+	W±	+	—	..	...	..	...			...	...	...	...	—							
2777	5 wk.	..	..	..	..	..	..	S+	+	..	+	..	+	S+	+	W+	+	..	+	W+																
3057	4-7 da.	+	..	W+	..	..	..	..	+	..	+	W+	+																							
3135	5 wk.	..	..	..	..	..	..	..	+	..	+	..	+	..	+	M+	+	..	+	...	+	—														
									Arsenobenzol (French)																											
2977	4-7 da.	+	..	S+	..	..	..	..	+	..	+	..	+	S+	..	..	..	..	..	...	..	...			...	—										
H. L.	3 wk.	..	..	S+	..	..	..	..	+	..	+	..	+	S+	..	..	..	..	..	...	..	...			...	...										

* In all.

† Intramuscular.

Two patients received four doses of either salvarsan or neosalvarsan or a combination of each. One was a woman, five months pregnant with a chancre of the labium minor. The dark field resulted positively and the Wassermann negatively. She received one dose of neosalvarsan and the Wassermann immediately became strongly plus. She then was given three doses of salvarsan and the Wassermann reaction became negative and has remained so for over three years. She was delivered of an apparently healthy child one and a half years ago, whose Wassermann has been continuously negative since birth. In the other case, chancre of the lip, with a medium positive Wassermann, patient received three doses of salvarsan and one of neosalvarsan. The Wassermann reaction has remained negative now for over one year.

Two cases required five doses of either salvarsan or neosalvarsan or a combination of each before their serological tests became negative. In one, duration of two weeks, dark field plus, Wassermann negative, five doses of neosalvarsan were necessary before a negative Wassermann, one month after the last injection, was obtainable; in the other case, duration four weeks, Wassermann strongly plus, the patient received two doses of salvarsan and three doses of neosalvarsan, and the negative Wassermann resulted and has so remained for eighteen months.

The table mentioned shows that if each case of chancre be treated by salvarsan or neosalvarsan until the Wassermann becomes negative, it will remain negative for a period extending from one month to three years or more; thus demonstrating the efficiency of these drugs and the urgency of early diagnosis and intensive treatment. Even two doses of salvarsan or neosalvarsan have been sufficient to cure patients with chancres for a period extending over three years as we have shown in two of our cases. Indeed it would seem probable from our studies that two injections of either salvarsan or neosalvarsan are sufficient for the cure of chancre, but not in all cases, even though the patient may exhibit a positive Wassermann reaction. Apparently with a negative blood reaction this dictum may be regarded as absolute. One dose of either salvarsan or neosalvarsan may be enough to cure a case, but we have been unable to prove this, although in one case, duration two weeks, Wassermann strongly plus, in which the patient, "I. B.," received one dose of salvarsan intramuscularly, and protiodid of mercury, one third grain three times daily for a month, now for over five years has shown a negative Wassermann. This would confirm the belief entertained by some syphilographers that salvarsan given intramuscularly, may be more efficient than when given intravenously, although the discomfort, pain, induration, even local liquefaction and sinus formation in the buttocks, more than contraindicates, as a routine procedure, the employment of the drug in this manner.

SECONDARY AND LATENT SYPHILIS

Mercury Excluded from Treatment.—In this stage of the disease twenty-one traceable cases (Table 2) were treated with either salvarsan or neosalvarsan alone or conjointly. One patient only, with a medium positive Wassermann reaction, received not more than two injections of salvarsan, and thereafter displayed a negative reaction two years later. In four cases of two weeks' duration, each with a strongly positive Wassermann, patients received three doses either of salvarsan or neosalvarsan, which were followed by negative Wassermann reactions. In three of the cases the Wassermann was negative six months later and in the fourth one year after suspension of treatment. There are two cases, duration one month, one strongly positive and the other medium positive; one patient received three doses of neosalvarsan, the other three doses of salvarsan, and the Wassermann test was negative three and six months, respectively, after the last injection of the drug. In one case, duration three months, Wassermann strongly positive, patient received three doses of neosalvarsan followed by a negative Wassermann for three years. In two cases, duration six months, Wassermann reactions weakly and medium plus; one patient received three doses of salvarsan, resulting in a negative Wassermann for over a year after the last injection; the other received two doses of salvarsan and one of neosalvarsan, followed by a negative Wassermann three months after the last injection. In one case, duration two years, Wasserman strongly plus, patient received three doses of salvarsan, followed by a negative Wassermann three months later. In one case, duration five years, Wassermann medium plus, patient received three doses of salvarsan, and a negative Wassermann was obtained nine months later. In five cases with duration of one week, one month, six months and one year, with strongly or medium positive Wassermann reactions, each patient received four injections of neosalvarsan alone or supplemented by salvarsan. In each, the Wassermann was rendered negative and has remained so for periods varying from three months to two years.

In one case of two weeks' duration, patient received five doses of neosalvarsan. Prior to treatment the Wassermann was strongly positive, and even after the five injections still remained weakly positive. Thereafter, the patient disappeared from observation and treatment. Two cases in which nine injections were given: in one with a duration of three months, Wassermann strongly plus, patient received five doses of salvarsan and four of neosalvarsan, followed by a negative Wassermann, which remained negative two years after the last injection. In the other case, six months' duration, Wassermann strongly positive, patient was given three doses of salvarsan and six of neosalvarsan, and at the end of three months the Wassermann resulted negatively.

The final case in this group, one of pronounced alcoholism, is tabulated merely because of its interest serologically. The patient presented typical secondaries, but exhibited a negative Wassermann reaction, which did not appear positive until the eighth week, and then not until his excessive alcoholic imbibitions had been markedly curtailed.

Mercury Before and After Salvarsan and Neosalvarsan.—There is one case of six months' duration, Wassermann strongly plus, mercury for three months with no change in the Wassermann. Patient received two doses of salvarsan with still no change in the Wassermann reaction, then disappeared from observation. In two cases, duration one week, Wassermann strongly positive in both, each patient had three doses of salvarsan, followed by mercury for three months, showed a negative Wassermann at the end of three months. In one case exhibiting a secondary eruption and anal mucous patches of one month's duration, the Wassermann was strongly positive. Three doses of neosalvarsan and mercury for one and a half years resulted in a Wassermann still weakly positive, but negative three months later. In two cases of three months' duration, Wassermann strongly plus in both, one patient received one dose of salvarsan and two doses of neosalvarsan, mercury for one year and a negative Wassermann was observed two years after discontinuing all medication. The other patient received three doses of neosalvarsan, Wassermann test still showing medium positive. After six months of mercury treatment a negative Wassermann was obtained two years after all medication was discontinued. Two cases, duration of each one year, Wassermann reactions were strongly positive; one patient received two doses of neosalvarsan and one of salvarsan, mercury for six months, resulting in a negative Wassermann at the end of the second year after the discontinuance of mercury. The other patient received mercury for one year before the administration of two doses of salvarsan and one dose of neosalvarsan, resulting in a negative Wassermann at the end of three months. In one case of two years' duration, the patient, under mercurial treatment during this time, received two doses of salvarsan and one of neosalvarsan, resulting in a negative Wassermann, after which the patient disappeared. In one case of four years' duration, patient had been treated with mercury for two years. After two injections of salvarsan and one of neosalvarsan, and mercury for one year, he still exhibited a weakly positive Wassermann reaction.

TABLE 2.—SECONDARY AND LATENT SYPHILIS. MERCURY EXCLUDED FROM TREATMENT

Case	Duration	Wassermann	Salvarsan Dosage and Wassermann Controls														Neosalvarsan Dosage and Wassermann Contrals												Subsequent Wassermann Results									
																													Months						Years			
			1	W	2	W	3	W	4	W	5	W	6	W	7	W	1	W	2	W	3	W	4	W	5	W	6	W	1	2	3	4	6	9	1	1½	2	3
7852	5 years	M+	+	W+	+	—	..	...	..	...	..	..	...	...	..	...	..	..	..	...	..	...	..	...	..	...	..	...	....	..	....	..	..	..	..	...	—	
1374	2 weeks	S+	+	....	+	....	+	—	..	...	..	..	...	...	..	...	..	..	..	...	..	...	..	...	..	...	..	...	....	..	....	..	..	..	—			
1618	2 weeks	S+	+	....	+	....	+	—	..	...	..	..	...	...	..	...	..	..	..	...	..	...	..	...	..	...	..	...	....	..	....	..	—					
1638	2 weeks	S+	..	....	..	....	..	...	..	...	..	..	...	...	..	...	+	..	+	W+	+	—	..	...	..	...	..	...	....	..	—	..	—					
2501	2 weeks	S+	+	....	+	....	+	—	..	...	..	..	...	...	..	...	..	..	..	...	..	...	..	...	..	...	..	...	....	..	....	..	—					
2004	1 month	M+	..	....	..	....	..	...	..	...	..	..	...	...	..	...	+	..	+	...	+	...	..	...	..	...	..	...	....	..	—							
2485	1 month	S+	+	....	+	....	+	—	..	...	..	..	...	...	..	...	..	..	..	...	..	...	..	...	..	...	..	...	....	..	....	..	—					
977	3 months	S+	..	....	..	....	..	...	..	...	..	..	...	...	..	...	+	M+	+	W+	+	—	..	...	..	...	..	...	....	..	....	..	..	..	..	—		
G. B.	6 months	M+	+	....	+	....	+	—	..	...	..	..	...	...	..	...	..	..	..	...	..	...	..	...	..	...	..	...	....	..	....	..	..	..	—			
A. K.	6 months	W+	+	....	+	....	..	...	..	...	..	..	...	...	..	...	+	—	..	...	..	...	..	...	..	...	..	...	....	..	—							
1395	2 years	S+	+	....	+	....	+	—	..	...	..	..	...	...	..	...	..	..	..	...	..	...	..	...	..	...	..	...	....	..	—							
2512	5 years	M+	+	....	+	....	+	—	..	...	..	..	...	...	..	...	..	..	..	...	..	...	..	...	..	...	..	...	....	..	....	..	..	—				
1449	1 week	S+	+	....	+	S+	+	...	..	...	..	..	...	...	..	...	+	—	..	...	..	...	..	...	..	...	..	...	....	..	—							
1814	1 month	S+	+	....	+	....	+	W+	..	...	..	..	...	...	..	...	+	—	..	...	..	...	..	...	..	...	..	...	....	..	....	..	..	..	..	—	—	
2106	1 month	M+	+	....	+	....	+	W+	..	...	..	..	...	...	..	...	+	—																				
B. W.	6 months	S+	..	....	..	....	..	...	..	...	..	..	...	...	..	...	+	..	+	...	+	...	+	...	..	...	..	...	....	..	....	..	—					
894	1 year	M+	+	....	+	M+	..	...	..	...	..	..	...	...	..	...	+	..	+	—	..	...	..	...	..	...	..	...	....	..	....	..	..	..	..	—		
1048	2 weeks	S+	..	....	..	....	..	...	..	...	..	..	...	...	..	...	+	..	+	S+	+	M+	+	...	+	W+												
8541	3 months	S+	+	....	+	M+	+	M+	+	M+	+	..	...	...	..	...	+	..	+	...	+	W+	+	—	..	...	..	...	....	..	....	..	..	..	..	...	—	
H. E. N.	6 months	S+	+	....	+	....	+	...	..	...	..	..	...	...	..	...	+	..	+	...	+	...	+	...	+	...	+	...	....	..	—							
2058*	2 weeks																																					
			Arsenobenzol (Polyclinie)																																			
			1	W	2	W	3	W	4	W	5	W	6	W	7	W	8	W	9	W	10	W	11	W	12	W	13	W										
2763	1 year	M+	+	M+	+	M+	+	W+	..	...	..	..	...	...	..	...	..	..	..	...	..	...	..	...	..	...	..	...	....	..	....	..	..	—				
2875	1 year	S+	+	....	+	S+	+	S+	..	...	..	..	...	...	..	...	..	..	..	...	..	...	..	...	..	...	..	...	....	..	....	..	M+					
2802	1 year	VW+	+	VW+																																		
2930	4 years	W+	+	....	+	W+	+	—	..	...	..	..	...	...	..	...	..	..	..	...	..	...	..	...	..	...	..	...	....	..	VW+							
3030	4 years	S+	+	....	+	S+	+	—	..	...	..	..	...	...	..	...	..	..	..	...	..	...	..	...	..	...	..	...	—	—								
3056	3 months	S+	+	....	+	....	+	M+	..	...	..	..	...	...	..	...	..	..	..	...	..	...	..	...	..	...	..	...	W+									
3118	....	VW+	+	....	+	....	+	—	..	...	..	..	...	...	..	...	..	..	..	...	..	...	..	...	..	...	..	...	....	..	—							
E. U.	....	S+	+	....	+	S+	+	...	+	...	+	S+	+†	...	+	...	+	..	+	S+																		
A. P.	....	S+	+	....	+	....	+	S+	+	W+	+	..	+	W+	+	—	+	..	+	...	+	W+	+	...	+	...	+											
			Arsenobenzol (French)																																			
2944	1 week	Neg.	+	VW+	+	VW+	+	—																														
2987	2 years	W+	+	....	+	....	+	—																														
3013	1 month	S+	+	S+	+	....	+																															
			Diarsenol (Canadian)																																			
3133	3 months	S+	+	S+	+																																	
2841	7 years	M+	+	W+																																		

* Pronounced alcoholic; no salvarsan until the eighth week; no neosalvarsan treatment. † 3 grains.

There were three cases that received four injections of salvarsan or neosalvarsan or both. In the first case of one month's duration, Wassermann strongly plus, after four doses of neosalvarsan and mercury for one year, the Wassermann became negative and remained so for a period extending over one and one half years. The other two cases of six months' duration both showed strongly plus Wassermann reactions; one patient was given mercury for three months, the Wassermann continuing strongly plus, received four doses of salvarsan and a negative Wassermann resulted, remaining so for a period of over two years. The third patient after six months' treatment with mercury with a medium plus Wassermann, received three doses of salvarsan and one dose of neosalvarsan, and demonstrated a negative Wassermann at the end of six months.

One case of four years' duration, after mercury for one year, showed a diminution of the Wassermann reaction from strongly to weakly positive. The patient then received three doses of neosalvarsan with no change in the blood picture. Two more doses of neosalvarsan were given and the Wassermann became negative and stayed negative for a period of six months after the final injection.

In two cases six doses of the drugs were given. In one, duration one year, Wassermann weakly positive, two doses of salvarsan and four doses of neosalvarsan were given followed by mercury for six months. A negative Wassermann resulted and has remained so for over two years. This man has since married and is the father of an apparently healthy child. In the other case, duration three years, mercury had been taken for one year. Patient was given five doses of salvarsan and one of neosalvarsan, and a negative Wassermann was observed six months after the last injection.

It will therefore be seen that in the secondary cases treated with salvarsan or neosalvarsan alone, we were able to obtain a negative Wassermann in each case, except one, extending from periods immediately after the last injection until three years. The one case in which we were unable to obtain a negative blood test, showed a weakly positive Wassermann after the fifth injection of neosalvarsan, the patient disappearing from observation thereafter. Whether this case illustrates, comparatively with salvarsan, the inferiority, therapeutically, of the former drug, or the case is one of those exhibiting a weakly positive serological reaction after therapeutic injections to be followed indefinitely thereafter by negative reactions, we are at present unable to assert.

In the group, Table 3, of secondary cases treated with mercury before or after salvarsan and neosalvarsan, our results were not so fortunate. It will be seen that one patient after two injections still has a strongly positive Wassermann reaction. This, however, has been a common observation, namely, that after the second injection of salvarsan or neosalvarsan, just as after the first, the blood continues to show a strongly positive reaction. In other words, there is little change noted in the Wassermann result, as usually expressed, owing to the fact that the intensity of the reaction is in excess of one unit, and quantitative nomenclature is necessary to portray the reduction of very strongly positive results. Thus in only 1 or 6.25 per cent. of the patients in this group, that received three or more injections of salvarsan or neosalvarsan, preceded or followed by mercury, did we fail to obtain a negative Wassermann. Undoubtedly in these cases additional doses of the drugs should be administered, with the hope of rendering the blood negative. Thus from the analysis of our cases it is obvious that if a patient with secondary syphilis takes a sufficient number of injections of salvarsan or neosalvarsan to secure a negative Wassermann, a possibility in 95.2 per cent. of patients, it may remain negative even though no mercury be used. We have had in the entire series of secondary syphilis two cases that showed a negative Wassermann for one year, two cases that showed a negative test for over one and a half years and seven

TABLE 3.—SECONDARY AND LATENT SYPHILIS. MERCURY BEFORE AND AFTER SALVARSAN AND NEOSALVARSAN

Case	Duration	Wassermann	Mercury					Wassermann	Salvarsan Injections and Wassermann Controls									Neosalvarsan Injections and Wassermann Controls									Subsequent Wassermann Results									
			Months		Years																						Months		Years		Months		Lears			
			3	6	1	1½	2		1	W	2	W	3	W	4	W	5	1	W	2	W	3	W	4	W	5	3	6	1	1½	3	6	1	1½	2	3
8551	6 months	S+	+	....	....	....	....	S+	+	...	+	S+																								
877	1 week	S+	....	....	....	....	....	S+	+	...	+	S+	+	...	..	...	...	..	....	..	....	..	....	..	....	...	+	....	....	....	—					
H. M.	1 week	S+	....	....	....	....	....	......	+	...	+	....	+	...	..	...	...	..	....	..	....	..	....	..	....	...	+	....	....	....	—					
2007	1 month	S+	....	....	....	....	....	......	....	...	..	....	..	...	..	...	...	+	....	+	....	+	W+	..	....	...	....	....	....	+	W+	—				
445	3 months	S+	+	....	....	....	....	S+	+	...	..	....	..	...	..	...	...	+	....	+	....	+	....	..	....	...	....	....	+	....	....	....	..	...	—	
789	3 months	S+	....	....	....	....	....	S+	....	...	..	....	..	...	..	...	...	+	....	+	....	+	M+	..	....	...	....	+	....	....	....	....	..	...	—	
446	6 months	W+	....	....	....	....	....	......	+																											
G. C.	6 months	W+	....	....	+	....	....	W+	+	...	+	....	..	...	..	...	...	+	—	..	....	..	....	..	....	...	....	....	....	....	—					
H. T.	1 year	....	....	....	....	....	+	W+	+	...	+	....	..	...	..	...	...	+	—																	
R. M. R.	4 years	....	....	....	....	....	+	M+	+	...	+	....	..	...	..	...	...	+	....	..	....	..	....	..	....	...	....	....	+	....	W+					
G. B.	1 month	S+	....	....	....	....	....	......	....	...	..	....	..	...	..	...	...	+	....	+	S+	+	....	+	....	...	....	....	+	....	....	....	—	—		
8627	6 months	S+	+	....	....	....	....	S+	+	...	+	S+	+	+	—	+	—	..	....	..	....	..	....	..	....	...	....	....	....	....	....	....	..	...	—	
858	6 months	S+	....	+	....	....	....	M+	+	...	+	....	+	...	..	...	...	+	—	..	....	..	....	..	....	...	....	....	....	....	....	—				
M. C.	4 years	S+	....	....	+	....	....	W+	....	...	..	....	..	...	..	...	...	+	....	+	....	+	W+	+	....	+	—	....	....	....	....	—				
800	1 year	W+	....	....	....	....	....	......	+	...	+	....	..	...	..	...	...	+	....	+	....	+	....	+	W+	...	....	+	....	....	....	....	..	...	—	—
J. R.	3 years	....	....	....	+	....	....	......	+	...	+	....	+	...	+	...	+	+	....	..	....	..	....	..	....	...	....	....	....	....	....	—				

cases that showed a negative reaction for over two years, and two cases that have continued negative for over three years.

The striking feature of this report and the motive that prompted its presentation is the discovery, a few months ago, that without exception every syphilitic not only in the primary but likewise in the secondary stage of the disease, over 60 per cent. of whom exhibited strongly positive Wassermann reactions, who had been intensively treated with salvarsan and neosalvarsan only, with resultant negative serologic tests, continued to demonstrate negative Wassermann reactions in periods varying from three months to three years after the suspension of treatment. It should be stated in this connection that our Wassermann results are based on the technic employing the so-called single unit of complement and alcoholic extract of syphilitic liver antigen. It is not improbable that with the use of a cholesterinized extract antigen or the Hecht-Weinberg test that some of our negative results might have appeared weakly positive. As a matter of fact, with few exceptions there has been remarkable similarity of agreement between the results with alcoholic syphilitic liver and cholesterinized extract antigens, so far as the late tabulated Wassermann results are concerned. Moreover, there is no absolute assurance with a cholesterinized antigen, as with the alcoholic syphilitic liver extract antigen, that in a given patient the serologic blood test will continue forever negative, after having been so rendered by treatment.

Indeed, although the clinical symptoms in each case cleared up entirely after the second dose of salvarsan and in a majority of cases after the first injection, and the patients have been entirely free of symptoms in conjunction with continuous negative Wassermann reactions for one, two and three years, we are loath to assert that they are cured, realizing full well that five, ten, twenty, forty years or a generation or more may be required to settle that question. Therefore, these observations are to be regarded, obviously, only in the light of a preliminary or provisional report, which we intend to supplement by the "follow-up plan" to the extent that the foibles and irresponsibilities of patients will permit. Irrespective of the remote results, it is quite apparent by a comparison of Tables 2 and 3 that, if any reliance may be placed on a two or three year serologic criterion, mercury need play no important rôle in the treatment of secondary syphilis, provided contraindications to the intensive administration of salvarsan or neosalvarsan do not arise.

TABLE 4.—TERTIARY SYPHILIS. MERCURY BEFORE AND AFTER SALVARSAN AND NEOSALVARSAN

Case	Duration	Wassermann	Mercury				Salvarsan Injections and Wassermann Controls										Neosalvarsan Injections and Wassermann Controls										Mercury				Subsequent Wass. Results							
			6 Mos.	Years 1	2	3	1	W	2	W	3	W	4	W	5	W	1	W	2	W	3	W	4	W	5	W	6 Mos.	Years 1	2	3	Months 1	2	3	6	Years 1	1½	2	3
1198	7 years	M+	..	..	..	+	+	M+	..	..	..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	—	—	
8514	10 years	S+	..	..	+	..	+	..	+	..	+	—	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	—			
742	10 years	M+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	+	W+	+	—	..	..	..	..	..	..	..	..	..	..	—					
791	10 years	M+	+	..	..	..	+	..	..	..	..	..	..	..	..	..	+	..	+	M+	..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	—	—	
W. J. C.	14 years	M+	..	+	..	..	+	..	+	..	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	—			
E. N. C.	18 years	S+	..	..	+		+	..	+	..	..	..	..	..	..	..	+	S+																				
1191	5 years	M+	+	..	..	..	+	..	..	..	..	..	..	..	..	..	+	..	+	..	+	W+	..	..	..	..	..	..	..	..	..	..	..	..	—			
1410	10 years	S+	..	..	+	..	+	S+	..	..	..	..	..	..	..	..	+	..	+	..	+	S+	..	..	..	..	..	+	..	..	..	..	..	..	W+			
866	14 years	W+	..	+	..	..	+	..	+	..	..	..	..	..	..	..	+	..	+	—	..	..	..	..	..	..	..	..	..	..	..	..	—					
339	18 years	S+	+	..	..	..	+	S+	..	..	..	..	..	..	..	..	+	..	+	..	+	S+	..	..	..	..	..	..	..	+	..	..	..	..	..	..	..	S+
C. M.	?	S+	+	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	+	..	+	..	+	..	+	..	..	..	..	..	..	..	—					
F. B. H.	18 years	S+	..	..	..	..	+	..	+	S+	..	..	..	..	..	..	+	S+	+	W+	+	—																
2080	6 months	..	..	..	..	+	+	..	+	..	+	..	+	..	+	W+	+	W+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	W+	—			
997	10 years	S+	..	..	+	..	+	..	+	..	+	..	+	..	+	S+	+	..	+	..	+	W+																
							Arsenobenzol (Polyclinic)																															
2848	2 years	S+	..	..	..	..	+	..	+	S+	+	S+	..	..	..	..																						
2784½	6 months	S+	+	..	..	..	+	..	+	..	+	S+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	M+	..	..	M+				
2917	7 years	W+	..	..	..	..	+	..	+	W+	+	W+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	—				
2784	16 years	Neg.	..	..	..	..	+	W+	+	M+	+	S+	+	+	..	M+																						
3099	14 years	W+	..	+	..	..	+	..	+	..	+	—	..	..	..	..																						
							Arsenobenzol (French)																															
2950	16 years	S+	..	..	+	..	+	..	+	S+	+	M+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	W+	..	..	S+				
2936	18 years	VW+	..	..	..	+	+	..	+	..	+	—	..	..	..	..																						
2985	14 years	S+	..	+	..	..	+	..	+	..	+	S+	+	..	..	..																						

TERTIARY SYPHILIS

Nearly all of our patients with tertiary syphilis received mercury either before or after salvarsan or neosalvarsan. In Table 4 are tabulated fourteen cases which will suffice to demonstrate the effect of intensive treatment on the Wassermann reaction in this stage of the disease. In the first case in our series of seven and one half years' duration, with a medium plus Wassermann, the patient received one dose of salvarsan and one of neosalvarsan. This man took mercury for three years before the injections and six months thereafter. A negative Wassermann was obtained extending over a period of two years.

Five patients received three doses of the drugs. Three cases were of ten, one of fourteen and one of eighteen years' duration. The first patient with a strongly plus Wassermann reaction, having taken mercury for two years, received three doses of salvarsan, resulting in a negative Wassermann for a period extending over one year following the last injection. The second case of ten years' duration, with a medium plus Wassermann reaction, three doses of neosalvarsan being given, resulted in a negative Wassermann three weeks thereafter and at the end of the third month. The patient did not return for further observation. The last case of ten years' duration also showed a medium plus Wassermann, the patient having taken mercury for six months. He was given one dose of salvarsan and two doses of neosalvarsan and mercury for six months thereafter. The Wassermann test taken years later was negative. In the case of fourteen years' duration, with a medium plus Wassermann, the patient had taken mercury for one year. He was given three doses of salvarsan, and a continuous negative Wassermann, for over one year, followed the last injection. In the case of eighteen years' duration, Wassermann strongly positive, the patient had taken mercury for two years. He was given one dose of neosalvarsan and two of salvarsan. The Wassermann observed three weeks later was still strongly positive. The man never returned for further observations.

There are four cases tabulated in which the patients received four doses of the drugs. In the first case of five years' duration, Wassermann medium plus, the patient had taken mercury for six months. He was given one dose of salvarsan and three of neosalvarsan, and a negative Wassermann one year after the last injection was obtained. In the second, a case of ten years' duration, Wassermann strongly plus, the patient had taken mercury for two years. He was given one dose of salvarsan and three doses of neosalvarsan, followed by mercury for another year. He still had a weakly plus Wassermann after one year. In the third case of fourteen years' duration, Wassermann weakly plus, the patient had taken mercury for one year. He was given two doses of salvarsan and two of neosalvarsan, and a negative Wassermann was obtained three months later. In the fourth case of eighteen years' duration, with a strongly plus Wassermann, the patient had taken mercury for six months. He received one dose of salvarsan and three of neosalvarsan, and mercury for three years. He still had a strongly positive Wassermann.

Two patients received five doses of the drugs. In the first case, of indefinite duration, with a strongly plus Wassermann reaction, the patient had received mercury for six months. She was given five doses of neosalvarsan. Three months after the last injection, the Wassermann was negative. Continued observations have been impossible. In the other case of eighteen years' duration, with a strongly plus Wassermann, the patient received two doses of salvarsan and three doses of neosalvarsan, resulting in a negative Wassermann. The patient did not return for further observation.

One patient received six doses of the drugs, five of salvarsan and one of neosalvarsan. The disease was of five years' duration and although mercury was taken for three years previously, the patient still manifested a weakly positive Wassermann reaction one year following the last injection.

The last case was one of ten years' duration, with a strongly plus Wassermann reaction; although the patient had taken mercury for two years and also had received five doses of salvarsan elsewhere. He was given three doses of neosalvarsan and his Wassermann became weakly plus. He did not return for further treatment or blood tests.

It will readily be seen from the above cases that the prognosis as to serologic cure in tertiary syphilis is not particularly good. Of the fourteen cases studied, nine gave a negative Wassermann, while in five a negative Wassermann, even after eight injections of salvarsan or neosalvarsan and two years of mercury was not obtainable. It will be observed that in the tertiary stage of syphilis with active manifestations, just as in the secondary period, the Wassermann reaction has resulted positively in 100 per cent. of cases, even though the vast majority had received antisyphilitic treatment.

SUBSTITUTES FOR SALVARSAN

Owing to our inability in the latter part of 1915 to obtain salvarsan or neosalvarsan for dispensary patients, we were obliged to seek for a substitute for these drugs. Sodium cacodylate, because of its high arsenical content, 38 per cent., and lack of toxicity appealed as a plausible preparation, although months before we had administered this drug intravenously twice weekly in 5 grain doses with spurious benefit, in view of its alleged value intramuscularly in the cure of chancres. We decided, therefore, to test its worth by enormous dosage intravenously. Accordingly, as much as 30 grains twice weekly were administered without the slightest toxic symptoms, and also with very slight effect on the syphilitic lesions, and absolutely none whatever on the Wassermann reaction.

Another drug which we gave a thorough trial a few years ago is the arylarsonate, "soamin," with results little better than with sodium cacodylate.

As the stringency in the supply of salvarsan and neosalvarsan increased, Drs. Schamberg, Raiziss and Kolmer of the Dermatological Research Laboratories of the Philadelphia Polyclinic Hospital, after a year of animal experimentation and standardization, placed in the hands of the medical profession arsenobenzol, a preparation essentially similar therapeutically to salvarsan.

We embraced the opportunity to study the effect of this drug on syphilis in its different stages. The technic of administration of arsenobenzol (Polyclinic) differs in no material respect from that of salvarsan. The drug, quite difficult of solution in the beginning, has been improved in that respect. The reactions are about the same as with neosalvarsan, that is negligible, stamping the Polyclinic preparation as one of minimum toxicity. Clinically, so far as its immediate effect on the syphilitic lesions themselves is concerned, this product is the equal of the German or any of the allied preparations, although it seems to us that the crucial test to be applied to any of the arsenobenzol products, so far as their paramount antisyphilitic value is concerned, will be the Wassermann serologic reaction extending, possibly, over many years in the future. Our results with arsenobenzol (Polyclinic) are tabulated for the various stages of syphilis in Tables 1, 2 and 4.

Seven chancre cases are tabulated. In two cases, both of four weeks' duration, the patient received only two doses. The Wassermann reaction in one was strongly plus and remained strongly plus after the second injection, but six months later, with no treatment in the interim, the serologic test resulted negatively. The other case was a weakly plus Wassermann in which the patient received two doses of arsenobenzol (Polyclinic) and a negative Wassermann resulted after the second injection. Two patients received three injections of the drug; the first presenting a week old chancre, with a weakly plus Wassermann, after three doses presented a negative Wassermann. In the other case of two weeks' duration, dark field positive, Wassermann weakly plus, the patient was given three doses of arsenobenzol (Polyclinic) and a negative Wassermann resulted. One patient received five doses before a negative Wassermann was obtained. This was a chancre of three weeks' duration; dark field examination positive; the first Wassermann test was a failure; the Wassermann however after the first injection was weakly plus. It was still weakly plus after the third, very weakly plus after the fourth and negative after the fifth injection. The other case was of five weeks' duration; Wassermann strongly positive. The patient received six doses of arsenobenzol (Polyclinic) and his blood is still weakly positive. This is a serologic result that we have not observed with similar dosage of any of the other preparations of arsenobenzol. Indeed in the entire series of chancres treated with salvarsan or neosalvarsan, a maximum of five injections, necessary in but two cases, have always sufficed to render the Wassermann negative. The final case of chancre treated with arsenobenzol (Polyclinic) was of seven days' duration. In addition to finding the *Treponema pallidum* with the dark field illuminator, the Wassermann was weakly positive, a serologic result still present after two intravenous injections. The patient has been given a third dose and will receive at least two more injections of the drug, followed by the Wassermann control.

Several months ago, we secured a supply of French salvarsan or arsenobenzol (Billon). The result in one case of meatal chancre, of one week's duration, in which the dark field microscope was positive for treponemata and the Wassermann strongly positive is that after three injections, the Wassermann was still strongly positive, but became negative two months later (Table 1). The second case of chancre treated with arsenobenzol (Billon) was one of three weeks' duration with a strongly positive Wassermann. Three months after the third injection the Wassermann was found to be negative.

We have tabulated in Table 2 only seven patients in the secondary and latent stage of syphilis that have been treated with arsenobenzol (Polyclinic). The duration of the disease in these cases varied from three months to four years. The Wassermann reactions in three cases were weakly positive, in one medium and in the remaining three strongly positive. Six of the seven patients were given three injections of arsenobenzol (Polyclinic), and the seventh only one dose. Four of the cases still exhibited positive Wassermann reactions immediately after the injections, and two cases traceable one and three months, respectfully, after treatment, showed positive blood tests, one of which immediately after treatment was reported negative. In comparison with either salvarsan or neosalvarsan, arsenobenzol (Polyclinic) apparently does not clear up the blood as rapidly as the older preparations. As a rule more injections of arsenobenzol (Polyclinic) than either salvarsan or neosalvarsan are required to accomplish the same serological result, although we feel that the cases studied to date have been too few and the time too limited to warrant final conclusions.

Three cases in this stage of syphilis have been treated with arsenobenzol (French) and two with diarsenol (Synthetic Drug Company, Toronto, Canada). The number of patients have been too few and the period of time since the injections too brief to warrant any statement as to the true comparative efficiency of these preparations, although the immediate effects, both clinically and serologically, are good. Both, however, are apparently much more toxic than the Polyclinic preparation.

In five cases of tertiary syphilis, tabulated in Table 4, the patients were treated with arsenobenzol (Polyclinic). One patient with facial paralysis of six months' duration received three doses of arsenobenzol. The paralysis disappeared and the Wassermann, still strongly positive immediately after the injections, was found to be negative six month later following continuous mercurial treatment. In another case of two years' duration, with a strongly plus Wassermann, the patient received three doses of arsenobenzol. The Wassermann reaction, still strongly positive, was observed to be only medium positive a month later. The third case of seven years' duration, showed a Wassermann weakly plus. After three doses of arsenobenzol, it is still weakly plus. The fourth case of sixteen years' duration, with a negative Wassermann, after one dose of arsenobenzol demonstrated a weakly positive blood reaction, increasing to strongly positive after the third dose, and even after the fifth injection it continued to be medium positive. The fifth case in this group is of fourteen years' duration and the patient had taken mixed treatment for one year. The Wassermann reaction, weakly positive prior to three injections of arsenobenzol, was rendered negative.

In three cases of tertiary syphilis the patients were injected with the French arsenobenzol. In one case of sixteen years' duration, with a strongly positive Wassermann, the patient had taken mixed treatment for two years. He received three doses of the French preparation, after which the blood showed a medium positive reaction, which one month later was still weakly positive. In the second case of eighteen years' duration the patient had taken mixed treatment for three years. His Wassermann, very weakly plus before, was rendered negative after three doses of arsenobenzol (French). In the last case of fourteen years' duration the patient had taken mixed treatment for one year. His Wassermann reaction, strongly plus before three doses of arsenobenzol (Billon), was not appreciably influenced by the injections. We do not feel justified in drawing conclusions from these few cases of tertiary syphilis treated with the Polyclinic and French preparations of arsenobenzol. Moreover, the period of observation is too limited for definite opinion. Apparently the results, serologically, do not promise, in similar dosage, to be as good as either the German salvarsan or neosalvarsan.

In Table 5 we have classified the "clinical reactions" under different headings, namely, headache, chill, fever, nausea, vomiting, diarrhea, renal irritation, skin eruption, neuritis and death. When more than one reactionary manifestation occurred, multiple initials are used for the designation. We studied 167 cases in this respect treated with salvarsan. Reactions occured in 124 and no reaction was observed in forty-three cases. It was deemed advisable to restrain or keep twelve patients injected with salvarsan over night in the receiving ward. One patient after the third injection of salvarsan, developed a marked cutaneous eruption, neuritis and after a lingering illness of two months died.

Sixty-nine of 119 patients injected with neosalvarsan manifested reactions. The percentage of reactions with neosalvarsan appears to be higher than with salvarsan, but it will be observed that the neo-reactions were all of a less severe form. Only five patients in this group were advised to stay over night in the receiving ward. One patient of this series developed a marked skin eruption persisting for weeks. After a sojourn of three months at the hospital, she was discharged in good health and relieved of her only complaint, excruciating headaches. Thirty-eight injections of arsenobenzol (Polyclinic) were followed by reactions in twenty-two instances. The reactions with arsenobenzol (Polyclinic) were all slight except in one patient, a woman, who was given the full dose on two occasions. She had to remain at the hospital, and vomiting continued for two days.

Arsenobenzol (Billon) or French salvarsan was followed by twenty-four reactions in twenty-six cases, twelve of the patients being advised to stay over night in the hospital. The reactions in this small series of cases were so much more severe than with either salvarsan, neosalvarsan or arsenobenzol (Polyclinic) that we were obliged to exercise unusual precaution and discrimination in the selection of patients, although its therapeutic value may be as good as the Polyclinic arsenobenzol.

TABLE 5.—CLINICAL REACTIONS

	Salvarsan	Neosalvarsan	Arsenobenzol, Polyclinic	Arsenobenzol, French
Headache	7	9	3	4
Chills	2	1	1	0
Fever	9	4	0	0
Diarrhea	3	4	2	2
Nausea	6	4	1	0
Vomiting	10	4	0	1
Renal irritation	4	2	0	0
Skin eruption	1	1	0	0
Neuritis	1	0	0	0
Death	1	0	0	0
H. C. *	2	2	0	0
H. D.	6	1	1	1
H. F.	3	0	0	0
H. V.	3	3	1	0
H. N.	3	1	1	1
H. R.	1	0	0	0
H. N. V.	4	1	0	0
H. C. N. V.	7	1	0	1
H. F. N.	2	1	0	0
H. F. N. R.	1	0	0	0
H. F. D.	1	1	0	0
H. D. N.	2	2	0	0
H. D. V.	3	2	0	0
H. N. V. R.	1	2	0	0
C. N.	1	1	0	0
C. F.	1	0	0	0
C. F. N. V.	1	1	3	0
C. F. D. N.	2	0	0	0
F. N.	1	2	0	0
F. D. N. R.	1	1	0	0
F. N. V.	1	0	0	0
N. V.	12	5	0	0
D. N.	4	1	1	1
D. N. V.	4	1	0	0
F. D.	0	1	0	1
H. D. N. V.	0	4	4	1
F. H. V.	0	1	0	0
S. N. D.	1	0	0	0
Retained in hospital	12	5	4	12
Total reactions	124	69	22	24
Injection, no reaction	43	50	16	2

* Initial letters used to designate occurrence of two or more reactions coincidently, as "H. C." for "headache and chills."

Shortly before the discontinuance of its manufacture last summer, Polyclinic arsenobenzol was somewhat improved in its general characteristics. It was more easily dissolved and possessed a minimum of toxicity, that is, the reactions were practically nil. We would, therefore, commend the American product as perfectly safe and far less toxic, if not as efficient as the German salvarsan.

We feel that the American medical profession owes a great debt of gratitude to Drs. Schamberg, Raiziss and Kolmer for their untiring and selfsacrificing services in producing, standardizing and perfecting this preparation of arsenobenzol and placing it before the profession at a time when the original salvarsan was no longer generally obtainable.

SOCIOLOGICAL CONSIDERATION IN THE MANAGEMENT OF SYPHILIS

We have studied 510 cases of syphilis. The analysis of these cases from the sociological standpoint is not uninteresting, if not of vital importance to the community. For instance, of this number, there were eighty patients who were examined for syphilis and whose Wassermann reactions were observed to be positive, but who never returned to learn definitely whether or not they actually had the disease. One hundred fifty-one patients returned, were told that they had syphilis, but never undertook treatment. Thus there are 231 syphilitics, or 45 per cent., some in the infective stage of the disease, roaming about careless and indifferent as to their malady and the healths and lives of their associates, realizing full well that they will not be brought to justice. Thus we are again confronted with the old much-abused and little solved question: the social evil. Shall we, blinded with sentimentality, permit these men and women to be an omnipresent menace to the community or should we, with cooperation of the law, compel these slackers to undergo treatment, so that at least they will not readily infect others? Is there any real sensible reason why the health regulations governing measles, diphtheria, scarlet fever or smallpox should not apply in the main to syphilis? Is not syphilis today a greater menace than any of these, and many other better controlled transmissible diseases? We are not in sympathy with the individual registration of each syphilitic, either by name, number or in any other way, but we do believe it is feasible, proper and imperative to advise the public that, should anyone be unfortunate enough to acquire syphilis, he must seek treatment either privately or in hospital services, and continue under the same until discharged. Infraction of this regulation should imply report of the case by the physician to the health authorities, necessitating stringent action, amounting if need be to isolation or quarantine of the delinquent. On the other hand, just as in the case of other contagious and transmissible diseases, it should be a statutory requirement that any physician, neglecting to report to the board of health such delinquent from treatment, is subject to a fine or imprisonment or both. Anything short of the above, in our opinion, is farcical, and we do not see, by such a universal enactment, that injustice can accrue to any particular physician.

We were interested, particularly, in learning what became of the patients who failed to return. Accordingly, we sent out, one year ago, letters to 120 patients, pleading that they return, stating the seriousness of their condition. Thirty letters were returned for want of correct address or removal. The balance must have reached the patients to whom they were addressed. Of the ninety patients believed to have received notification, fifteen returned, and we asked them to state their reason for their lack of interest in their disease, the nature of which had been previously explained and was well known. One patient refused treatment altogether, saying he did not care. Five claimed that they had no money to pay for treatment. Five offered the poor excuse that they had gone out of town. These we believe should be classified with the next four who were utterly indifferent as to whether or not they were ever cured. The above serves to explain the psychology of these patients and we believe is the experience of many others engaged in the treatment of venereal diseases.

One of the most alarming facts elicited from these prodigals is that one third of them could not afford the cost of treatment. We know of one man who, on account of a brawl served time in jail and received gratis during his sojourn six doses of salvarsan. Such, however, is not the good fortune of the peaceful citizen who becomes the victim of syphilis, irrespective of origin. If he cannot pay for the best form of treatment, he is compelled either to do without salvarsan or to be content with the old method of treatment, which as a rule fails to cure.

Thus it is seen that the city and state should make provision for patients unable to pay for the proper treatment of their afflictions, by compelling all hospitals, receiving or hoping to receive state aid financially, to be equipped with facilities for the admission of patients suffering from venereal disease, when in the judgment of physicians the particular patient should be admitted for a time for his or her own best treatment, as well as for the best interests of the community. Here is an opportunity for some public-spirited citizen to become a real philanthropist, by the endowment of a fund for the free distribution, under efficient control, of salvarsan to hospitals and the needy poor.

Eighty-nine patients received only one dose of either salvarsan or neosalvarsan. A few of these we succeeded in interviewing and inquired why they had not returned. The majority stated they concluded that one dose was sufficient, although each had been told at the outset of treatment that they were to take at least three doses at weekly intervals.[1] Almost without exception in these cases the nature of the disease was such that one dose of the drug could not possibly effect a cure.

Forty-seven patients received two doses of the drug and their story differs in no wise from those patients who received but one injection.

Sixty-eight patients received three or more doses of the drug, but they failed to return after the last injection and we were therefore unable to follow up the cases.

Nineteen patients received only protiodid of mercury or mixed treatment for only a month or two and then disappeared from observation.

Fifty-six patients, or approximately only 10 per cent., have undergone the full course of treatment and have continued to report from time to time for observation and blood tests. When we realize that 454 syphilitics are still at large, a great many of them in the infective stage (this the result from one hospital), it can readily be estimated what would be the revelations from all hospitals were the follow-up plan adopted. We are sure the results would amaze both the profession and laymen, and not the least our legislators, and might afford an incentive to activity to remedy the existing deplorable state of affairs respecting this scourge of civilized races.

CONCLUSIONS

1. The treatment of syphilis, notwithstanding the promise of salvarsan and its substitutes, judged from the excellent serological results extending in many instances over several years, remains empirical.

2. The ultimate proof of cure does not rest necessarily upon continuously negative Wassermann reactions for one, two, three, five, ten, twenty or even forty years, but rather upon complete freedom of symptoms for a generation or more.

3. The Wassermann reaction furnishes the best control of treatment and is the most reliable index of cure subsequent to proper treatment.

4. The sheet anchor in the treatment of syphilis is no longer mercury, but salvarsan, neosalvarsan or one of their substitutes. It is of para-

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[1] Attention is expressly directed to the fact that throughout this paper the full-sized dose, 0.6 gram of salvarsan or its equivalent of neosalvarsan and the other substitute preparations of arsenobenzol, were administered; also that the treatment was carried out as intensively as possible, the patient receiving his injections weekly, unless contraindications arose to prevent this routine. To this so-called intensive method of medication and the consequent early eradication of the Wassermann reaction, the author attributes the excellent subsequent serologic results.

mount importance, however, that the injections of arsenobenzol in the beginning, be administered as early as possible and intensively in full doses commensurate with the physiological tolerance of the patient, not scattered indefinitely over months, interspersed here and there with a Wassermann test. In view of the possibility of immediate cure by this drug, properly administered in the primary if not the secondary and latent stages of the disease, the treatment of syphilis, particularly in the chancre period, prior to the advent of a positive Wassermann, becomes an emergency operation, in many instances, no less imperative than appendectomy. Our experience dictates as a reliable routine, two injections of salvarsan in the early chancre stage; at least three injections in the late primary and throughout the secondary or latent stage of the disease, and during the tertiary and hereditary forms of syphilis not fewer than four to six injections, supplemented by mercury and the iodids. If, after such treatment, the Wassermann reaction still appears positive, a second series of injections should be administered.

5. Serologically judged on a three months' to a five years' duration, syphilis, in the chancre stage, if diagnosed early, either clinically or if necessary by either the dark field microscope or the Wassermann reaction, may be cured by two injections of salvarsan or neosalvarsan; indeed, if the diagnosis be made, particularly before the advent of a positive Wassermann, one dose of either of these drugs *may* be sufficient.

6. Secondary syphilis seems to do just as well without as with mercury, provided enough salvarsan or neosalvarsan be given to produce a negative Wassermann.

7. The serological results in tertiary syphilis treated intensively with salvarsan and its substitutes are not so brilliant as those of the secondary period.

8. The best substitute for salvarsan and neosalvarsan is the Polyclinic preparation of arsenobenzol, which although apparently not so effective in eradicating the Wassermann, is essentially devoid of any serious toxicity, even less so than neosalvarsan.

9. The French preparation of arsenobenzol (Billon) and the Canadian diarsenol (Synthetic Drug Company) are beautiful products and may be just as efficient as salvarsan and neosalvarsan, but on account of their greater tendency to toxic phenomena are not destined to supersede the original German products.

10. The arylarsonate "soamin" and sodium cacodylate, both clinically and serologically, have no place in the effective treatment of syphilis.

11. Sociologically, in view of the fact that only 10 per cent. of our hospital syphilitics return for treatment until discharged cured, a problem is presented which urgently demands the cooperation of our civil authorities and health boards for the necessary control and treatment of this disease, not, however, to be realized until all hospitals receiving state aid are compelled to maintain evening dispensaries with paid attendants for the proper treatment and admission, when necessary, of venereal patients.

I desire to express my deep appreciation to Dr. Charles H. J. Barnett, who rendered material assistance in collecting much of the data incorporated in this paper.

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THE TREATMENT OF SYPHILIS BY SALVARSAN CONTROLLED BY THE WASSERMANN REACTION *

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This report is based on the study of 112 cases of syphilis encountered in private practice in the last five years. During this period the patients were treated by salvarsan or neosalvarsan, the number of injections varying from three to sixteen in individual cases. Mercury in some form was used in all cases, except one, and in many old cases in conjunction with iodid of potassium. Salvarsan was used during 1911 and 1912; neosalvarsan from 1913 to 1915 inclusive, and at the present time salvarsan because of its more lasting effect and of its greater influence on the Wassermann reaction. The injections were all given intravenously; the initial dose was 0.4 gm. salvarsan or 0.6 gm. neosalvarsan, except in a few cardiac and renal cases in which smaller doses were first tried. The maximum dose, 0.6 gm. salvarsan and 0.9 gm. neosalvarsan, was used only in cerebrospinal cases preparatory to the intraspinal administration of salvarsanized serum.

For the purpose of report the cases may be grouped as to period or stage of the disease and also as to the particular organ or organs involved.

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* Read at the General Meeting of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 21, 1916.

The series consists of 112 cases grouped as follows: Initial lesions, 14 cases; early active secondary period, 22 cases; tertiary lesions of the skin and mucous membranes, 21 cases; syphilis of the liver, 3 cases; bone syphilis, 4 cases; syphilitic orchitis, 2 cases; syphilis of the cardiovascular system, 11 cases; cerebrospinal syphilis, including tabes and paresis, 28 cases; unclassified with positive Wassermann reactions, 6 cases.

In the fourteen initial lesions there were six extragenital chancres, four of which occurred on the fingers of professional men. Diagnosis was definitely established in one case on the seventh day of the disease, but in several cases not until the third or fourth week. These patients received an average of about six injections each during the first four months of the disease, and today with a single exception are free from the active manifestations of the disease and give negative Wassermann reactions. From twelve to eighteen injections of the salicylate of mercury were used in each instance except one. This case deserves special mention because it probably represents a cure by the use of salvarsan alone. A young man three weeks after a single exposure developed a suspicious sore which on the seventh day showed numerous spirochetes. Wassermann reaction was negative. Treatment was commenced July 2, 1912, and during the next fourteen days three injections of salvarsan, 0.5 gm. each, were given. The Wassermann reaction repeated monthly for a year remained, and is today, negative. Secondary symptoms did not appear. I feel satisfied that this was a case of syphilis which was cured by the early use of salvarsan.

Symptoms of the so-called secondary period of the disease were present in twenty-two cases and in this series 134 injections of salvarsan or neosalvarsan were given. To date sixteen of these patients have not shown signs of recurrence and give negative blood reactions. Here also the part played by the conjoint use of mercury cannot be definitely determined. One case, in which several injections of salvarsan and eighteen intramuscular injections, 1 grain each, of mercury salicylate were used, showed deep-seated cutaneous lesions five months after treatment had been temporarily discontinued. Another showed an ulcerative condition of the nose three months after the last of four injections of salvarsan and fifteen of mercury salicylate. The remaining four of this group are no longer under observation.

Of twenty-one cases showing tertiary lesions of the skin and mucous membranes, thirteen no longer show signs of activity and give negative blood reactions. One case of seven years' duration showing a gummatous condition of the nose and lip has been only temporarily healed after nine injections of salvarsan, and at no time have I obtained a negative complement fixation test. Symptoms of cerebral or vascular syphilis were not present. On the other hand a gummatous lesion of the nose of three years' duration with destruction and deformity with complete perforation of the palate healed with only three injections. Four of this series are no longer under observation.

There are three cases of syphilis of the liver, two of which responded promptly to five injections each and were continued on mercurial and iodid treatment. One case, however, complicated by an aortic valvular lesion, improved only slightly after each of five injections of 0.3 gm. of salvarsan. Improvement was only temporary, ascites developed, tapping of the abdominal cavity became necessary and this was followed by an exploratory incision which showed a large gumma with advanced necrosis and softening. Salvarsan was again used at weekly intervals for six doses and in conjunction with large doses of potassium iodid without appreciable benefit. The patient finally succumbed to erysipelas.

Of the four cases of bone syphilis three were gummata of the sternum and one of the tibia. One rather large gumma arising from the sternum produced pressure symptoms, cough, pain, etc., and responded readily to seven injections. The patient experienced considerable relief after the first two injections. I feel that the use of potassium iodid influenced this case and helped produce a rapid improvement. In another gumma of the sternum diagnosis was established by microscopic examination of the tissue after removal of supposed sarcoma. Wassermann reaction was positive. There was rapid healing after three injections of salvarsan. Three of the four patients have not shown symptoms for more than one year, in one of whom the Wassermann continued weakly positive. The fourth patient has not presented himself for treatment for more than a year.

Syphilitic orchitis was encountered in two instances. In one recent case the patient improved nicely with three injections. The other case of gummatous orchitis responded only fairly well after six doses of neosalvarsan.

Syphilis of the cardiovascular system comprised eleven of the 112 cases. Two were cases of aneurysm of the aorta, three aortitis, one probably arteritis obliterans, two aortic valvulitis, and the remaining three were cases of general arteriosclerosis. One patient with aneurysm received three injections of 0.3, 0.45 and 0.6 gm. of neosalvarsan at ten-day intervals with slight improvement. The other patient did not improve to the extent that he subsequently did under the influence of potassium iodid. In the three cases of syphilitic aortitis occurring from twelve to seventeen years after the initial lesion only one patient has improved to any degree. The second has had relief from substernal pain after seven injections of neosalvarsan, 0.45 gm. each. The third patient died suddenly from an attack of angina pectoris six months after the last of six injections. The patient with arteritis obliterans did not improve nor was the Wassermann reaction influenced by four injections. Three patients with general arteriosclerosis given four injections of 0.45 gm. neosalvarsan showed some improvement in their general condition but probably to no greater extent than other patients treated by the use of the iodids alone.

Of the twenty-eight cases of cerebrospinal syphilis six were tabes, one paresis, two probably paresis in the early stage, four meningitis, four hemiplegia, two spinal syphilis and four unclassified cases with nerve symptoms showing positive serum or spinal fluid reactions.

In general the cases of tabes showed some improvement after the intravenous treatment alone. This improvement, however, was more or less temporary in character. In one case only of tabes was salvarsanized serum used intraspinally after the Swift-Ellis technic. This was a recent case of tabes, in which the patient with rapidly progressing symptoms, during six months received a total of thirteen intravenous injections of salvarsan in seven of which serum was used intraspinally. The ataxia lessened, the pains disappeared and there was improvement in the eyes. The patient later returned to work and has not presented himself for treatment for several months. The patient having paresis did not improve with four injections of salvarsan intravenously.

The cases of syphilitic meningitis occurring during the active secondary period responded more readily to the use of salvarsan than did the other forms of cerebrospinal syphilis. In one of the four cases of meningitis, a young man in the fourth month of the disease, who had received three intravenous injections of neosalvarsan and weekly injections of mercury salicylate in conjunction with large doses of potassium iodid, developed obstinate headache. The blood Wassermann was a ++++, the spinal fluid Wassermann ++++, cell count 980. Seventy-two hours after the first intraspinal injection of salvarsanized serum the headache diminished in severity and after the second injection, ten days later, completely disappeared. After the two injections the spinal fluid became clear; cell count 36; Wassermann ++. Recent cases of hemiplegia and cases with cranial nerve involvement as a rule respond readily to a few injections. However, those occurring late in the disease do not respond to treatment so satisfactorily.

This experience has led me to believe that salvarsan is most useful during the early active period of the disease and that small frequently repeated doses, namely salvarsan, 0.3 to 0.4 gm., every week or ten days for twelve injections, and in conjunction with active mercurial treatment should constitute the first course of treatment in any new active case, after treatment to be determined by the return of suspicious symptoms and by the Wassermann reaction on the blood and spinal fluid.

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DISCUSSION

ON PAPERS OF DRS. LICHTY AND WHITCRAFT, THOMAS AND WILSON

Dr. George Morris Piersol, Philadelphia: As was emphasized in the first paper, the internist is chiefly concerned with the late, tertiary, less obvious manifestations of lues and sees but little of the earlier, acute types.

The chief result of the extraordinary advances in syphilology during the past decade has been to show that spirochetal infection is the real cause of an ever-increasing number of conditions, formerly not recognized as of syphilitic origin. Who can deny today the proved relationship between lues and disease processes, such as tabes, paresis, aortitis, aneurysm, and fibrous myocarditis? As a result of the Wassermann and other accurate methods of diagnosis, even pulmonary, bronchial, gastric, intestinal, pancreatic, and renal syphilis have been recognized.

The great frequency with which the internist encounters these late manifestations of syphilis, is due to one of two factors: either an enormous number of luetic infections are not recognized in their early stage or, if recognized, do not receive adequate treatment.

The successful treatment of lues depends on its early recognition and prompt management. The modern aids to diagnosis have been of invaluable service in enabling us to accomplish this purpose. There are still many who fail to appreciate the importance of utilizing methods of precision in making an accurate early diagnosis. Many are the examples that are met with in which even the most expert syphilographers have failed in the past to recognize lues. It is well known that many primary sores are atypical, it has also been shown that the soft chancre frequently harbors the organism of syphilis; hence frequent errors in the past and therefore the obvious necessity of insisting that the secretion of all doubtful venereal sores and early mucosal lesions be examined for the *Treponema pallidum*, in both of which lesions it is abundant. This is readily accomplished by the dark field illumination, a method which today is not overexpensive and which requires no great technical skill. If the spirochete cannot be found, a definite prognosis should not be given until repeated examinations have been made and the Wassermann reaction thoroughly tried out.

The time of the appearance of the Wassermann is uncertain, it is subject to wide individual variations. Some times it is positive after a few days, usually not for two or three weeks, frequently not until the seventh or eighth week.

The importance of repeated Wassermann reactions has already been amply emphasized. If we would lessen the present frequent occurrence of these late syphilitic manifestations, which come under the observation of the internist, we must aim at their prevention by insisting on more care and accuracy in the early diagnosis of syphilis and its thorough treatment, which can best be accomplished during the first six months after infection, when cure is possible.

The interpretation of the Wassermann reaction requires skill and experience. It is constantly forgotten that it is not a primary but a secondary aid to diagnosis. All syphilographers agree that the clinical phenomena of the disease are of equal importance and the burden of proof must not rest alone on the absence or presence of the reaction.

This is particularly true from a medical standpoint. In many of the more obscure visceral lesions of the nervous system, the cardiovascular apparatus and in latent hereditary syphilis, very definite clinical manifestations may be present and yet the blood Wassermann reaction negative. In such cases it often requires not only one, but several injections of salvarsan or the prolonged use of mercury and potassium iodid to induce a provocative reaction. Hence the importance of not attaching too much significance to a single negative Wassermann.

Conversely, there is a tendency sometimes to place too much reliance on a positive blood Wassermann. Such a reaction means that a syphilitic infection is present, but it far from proves that the trouble from which the patient suffers is due entirely to this infection.

Take for example a diagnosis that has recently become popular—syphilis of the stomach. There can be no question but that this condition exists. Some enthusiasts, however, would have us believe that in every case of chronic gastric disorder with a positive Wassermann, the cause is the syphilitic infection, and some of the clinical evidence presented is not overtrustworthy. Most of the cases reported have shown evidence of gastric ulcer in conjunction with a syphilitic history and a positive Wassermann. The chief evidence of the specific character of the gastric disease seems to rest on permanent relief of symptoms following specific therapy, after the failure of a prolonged trial of other measures. Syphilitic gastric ulcer is possibly frequent, but Fenwick is probably correct when he concludes that in about one half of the patients in whom the two diseases coexist there is no direct relationship between them.

Here attention should be called to the fact that even if a patient has a positive Wassermann reaction, there is no reason why an abdominal mass or a chronic rectal or lingual ulcer may not be a carcinoma.

Syphilitic involvement of the central nervous system is one of the most serious results of the infection and everything must be done to guard against its occurrence.

Infections of the nervous system occur in a large proportion of cases in the secondary period. Abnormalities of the cerebrospinal fluid, indicating central nervous involvement, were found by Altmann and Dreyfus in 66 per cent. of cases; by Gennerich in 90 per cent., and by Ellis and Swift in somewhat over 33 per cent. It has been shown that even after sufficient treatment to render the blood Wassermann repeatedly negative, and to cause the disappearance of all secondary manifestations, the spinal fluid may still show evidence of localized infection, as indicated by a positive spinal Wassermann, marked pleocytosis, globulin excess, and a "luetic curve" by the colloidal gold test. No apparently cured case of secondary lues should be discharged until spinal puncture has demonstrated that involvement of the nervous system is absent. For in this way only can an early meningitis be recognized and prophylactic measures adopted to prevent the later, more destructive lesions, as brain gumma, tabes, or paresis.

This brings up another important aspect of the economic and sociological problem presented by syphilis, already referred to by Dr. Thomas. To thoroughly treat active syphilitics and to perform all necessary diagnostic tests requires much time, care, money and many well-trained physicians. The present equipment of most of our state and hospital dispensaries for the care of luetic cases is totally inadequate for this purpose. Hence many cases after the more obtrusive symptoms are under control, pass from observation, and are doomed later on to develop, as a result of inadequate treatment, such serious central nervous complications as tabes and paresis. The result is that nearly all the paretics and many of the tabetics, finally become charges on the state, which is thus put to an enormous expense over a period of many years, an expense almost wholly avoidable had proper provision been made in the first place for the control and the thorough scientific management of these syphilitics.

In this connection attention should be directed to the desirability of performing the gold sol test, or the Lange colloidal gold test on all spinal fluids in addition to the Wassermann, cell count and globulin tests.

The earlier difficulties in standardizing the reagents for this test now have been overcome, thanks to the work of Miller. The test is easily made and is of definite value. It consists of a series of constant and characteristic color changes, depending on the amount of colloidal gold precipitated in 10 dilutions of spinal fluid in geometrical progression from 1 to 10 to 1 to 5120. These changes may be plotted in curves which take on certain characteristics for different conditions. The chief value of the test is in differentiating cerebrospinal syphilis, tabes and paresis. Its most important rôle is in distinguishing between paresis and conditions simulating it and as a prognostic sign in tabetics who at the time show no mental impairment. Fordyce and the New York school are enthusiastic over the colloidal gold test as a premonitory sign of later cerebral involvement in tabes.

Much has been said of methods of treatment.

Practically no hard and fast method of treatment can be laid down. All methods must be subject to modifications dependent on the age, sex, weight and susceptibility of the patient. Most authorities agree that salvarsan finds its greatest usefulness in primary and secondary syphilis.

As has just been pointed out, in primary infections before a positive Wassermann is obtained, it is possible to abort the infection clinically and serologically by the intensive use of salvarsan alone. Care must be taken to make such a treatment absolutely adequate. Remember that small foci of spirochetes hidden in the nervous system may escape the spirocheticidal action of salvarsan, even when the greater number of organisms have been rapidly destroyed. When this has occurred the usual tissue immunity from prolonged contact is lacking and as a result the small remaining foci may become active and cause more severe nervous manifestations from the inadequate intensive treatment than if milder therapy has been used.

In secondary syphilis most syphilographers agree that active salvarsan treatment must be combined with the equally active use of mercury. In late visceral lesions, courses of salvarsan and mercury must be combined with or followed by the prolonged use of potassium iodid.

Salvarsan alone often fails in latent syphilis.

The criteria of a cure are exacting and depend on a repeatedly negative Wassermann test for at least two years, continuing negative after a provocative injection of salvarsan and on a normal spinal fluid.

The persistence of spirochetal infection is emphasized to a discouraging degree by the recent work of Warthin. Out of forty-one patients coming to necropsy, in eleven of whom syphilis had been diagnosed, treated and regarded as cured, five of whom had recently been under active syphilitic treatment and in twenty-five of whom syphilis had been clinically excluded, Warthin found active syphilitic lesions and spirochetes in the tissues of all. The organs most uniformly found infected were the heart, aorta, testes, adrenals and liver. In six he found the pancreas involved. He has also noted an interesting and suggestive relationship between glycosuria and diabetes and chronic latent luetic lesions of the pancreas, a possible explanation for the obscure etiology of some cases of diabetes.

Dr. John A. Kolmer, Philadelphia: I am glad to learn that Dr. Thomas has found the arsenobenzol prepared in the Dermatological Research Laboratories of the Philadelphia Polyclinic of low toxicity. His observations are in accord with a very large number of similar reports received from physicians in different parts of the country. Our arsenobenzol is submitted to severe animal tests and rabbits must withstand the intravenous injection of 0.06 gm. per kilogram of body weight; this amount is equivalent to 3.6 gm. per 60 kilograms or about 125 pounds of body weight.

Experiments and clinical data indicate the superior spirocheticidal activity of salvarsan and arsenobenzol over neosalvarsan. Whereas 0.015 gm. of either of the former per kilo of body weight is sufficient to sterilize rats in experimental trypanosomiasis, much larger doses, as 0.02 to 0.03 gm. per kilo of body weight of the latter, are required and even these large doses may fail.

Cacodylate of soda is found absolutely without any effect in experimental trypanosomiasis and this drug should not be relied on to destroy *Spirochæta pallida* of syphilis. In an experimental study of the toxicity of various mercurials with Dr. Schamberg and Dr. Raiziss we found that insoluble salts of mercury, as the salicylates, are very slowly absorbed from the subcutaneous and muscular tissues and physicians should avoid administering such preparations at too close intervals in order to avoid cumulative effects which are particularly expressed in renal irritation as shown by the presence of albumin and casts in the urine.

The results reported by Dr. Thomas on the treatment of syphilis as judged by the effects on the Wassermann reaction are particularly favorable and not in accord with our own experience and the experience of many others. I believe that these results are due to the technic employed in the Wassermann reaction and particularly the employment of an alcoholic extract of syphilitic liver as antigen. A study of antigens since 1912 and covering over 3,000 tests with a number of different antigens, has shown quite conclusively the superiority of cholesterinized extracts as antigens in this reaction. These extracts have been found very delicate. The serum of a syphilitic person under treatment always reacts negatively in the Wassermann reaction with an antigen of alcoholic extract of syphilitic liver long before the reaction becomes negative with the cholesterinized antigens. My colleague, Dr. Schamberg, always continues treatment until the Wassermann reaction is negative with cholesterinized antigens and this result could be obtained only after the administration of a large number of doses of salvarsan. I believe it a serious error to discontinue treatment on the basis of a negative test with an antigen of alcoholic syphilitic liver because experience has taught me quite conclusively that a number of these persons still show a positive Wassermann reaction which could be rendered negative with additional treatment. The need of a very delicate control on the treatment of syphilis is well emphasized in Dr. Piersol's remarks to the effect that histological study of the organs of persons who had been treated for syphilis and pronounced Wassermann negative still showed the presence of spirochetes. In my opinion and that of my colleague, Dr. Schamberg, the Wassermann reaction is not too delicate but indeed is not delicate enough. I have used the Hecht-Gradwohl reaction as a control on the Wassermann and found that it yielded about 12 per cent. more true positive reactions than the Wassermann. In my experience I have found this control reaction most delicate and of great negative value, that is, a negative Hecht-Gradwohl reaction is the best serological evidence of the cure of syphilis with which I am familiar and no patient with syphilis should be discharged from observation and treatment until the Wassermann reaction is negative with cholesterinized antigen and then negative in the Hecht-Gradwohl reaction. Such guides would require far more treatment than indicated in the essays of the afternoon.

Since I first pointed out in 1912 that cholesterinized antigen may yield about 5 per cent. falsely positive reactions, my confidence in the results have steadily increased and as these antigens are perfected the percentage of pseudo or false reactions are becoming negligible. At any rate, the antigen of acetone insoluble lipoids of Noguchi is superior to alcoholic extract of syphilitic liver and does not yield pseudo reactions.

I am able to confirm the observations of Sherrick that normal persons taking potassium iodid may yield positive luetin reactions, and physicians should carefully rule out the influence of the iodids before conducting this test.

DR. LICHTY, closing: Dr. Piersol has so well presented the purpose of the paper which Dr. Whitcraft and I have presented for this symposium that it is scarcely necessary for me to say more. The purpose of this paper was not to criticize the Wassermann test. For my part personally, I would be unable to do this. We have accepted it as a laboratory test and feel that it should be a routine laboratory test. However, we insist that it should take its place among other laboratory tests and should receive the same care in interpretation as other tests do. When the case of a patient presents a certain symptom complex and unexpectedly or otherwise the Wassermann reaction is found "positive" in that patient, we should not immediately lose sight of the symptom complex and rush to intensive antiluetic treatment as the sole resource in the treatment of the patient.

This can best be illustrated in the case of two colored patients who came under my observation in the past few years. The first was one who had the symptoms of aortic disease. The physical signs were in accordance with this condition. There was no increased temperature or pulse rate. A positive Wassermann was found and it was concluded that the patient had a syphilitic aortitis. At the necropsy the aortic valves were acutely inflamed and a culture showed a green streptococcus. A few syphilitic plaques were found in the arch of the aorta. In other words this patient had an acute ulcerative endocarditis which probably had no relation to the syphilitic condition. The other patient had a high temperature, symptoms referable to the heart, rather indefinite cardiac signs because of the enormous size of the patient and the thick chest wall. The blood culture was negative but it was thought he had an ulcerative endocarditis even though the Wassermann was positive. At the necropsy a tuberculous pericarditis was found. In a third case which did not come to necropsy the diagnosis of acute ulcerative endocarditis was made and the focus of infection was suspected as being in the teeth. The Wassermann was also positive. In none of these cases did the Wassermann give any evidence of the pathological process which was responsible for the symptom complex and from these and many other cases which might be cited it must be concluded that a Wassermann test needs a definite interpretation as well as any other laboratory test employed in the examination of a patient.

DR. THOMAS, closing: My reason for placing the alcoholic extract of syphilitic liver antigen above cholesterinized antigen is that a certain number of positive results are obtained with the latter in the performance of the Wassermann reaction in absolutely nonsyphilitic persons. As a result, it has been our observation that occasionally the diagnosis of syphilis has been saddled on a nonsyphilitic and the unfortunate victim treated for a disease which he never possessed. Even in the Wassermann control of treatment we fail to see the utility of cholesterinized over alcoholic syphilitic liver extract antigen, for the reason that in a small percentage of individuals, normally presenting positive Wassermann reactions with the cholesterinized antigen, it would be impossible ever to secure a negative serologic result, no matter how intensively or how long treatment be administered.

In reviewing the last five hundred cases in which we have used the Wassermann test, using both alcoholic syphilitic liver and cholesterinized extracts, we found that in 14.8 per cent. the cholesterinized extract demonstrated a positive result, while the alcoholic syphilitic liver extract resulted negatively. These results were the routine and included all kinds of cases. The matter of prime importance which attracted our attention chiefly, however, was the percentage of positive results in definitely known nonsyphilitic individuals. Twenty-five patients exhibited either a very weakly, a weakly, or a medium positive reaction with the cholesterinized that were negative with the syphilitic liver extract antigen. This is a percentage of 5 in individuals who never had syphilis. We believe that by resort to the provocative injection when necessary, a latent or partially treated syphilitic will exhibit a positive Wassermann, and in view of our failure to obtain a positive result with syphilitic liver extract in any known nonsyphilitic, there never arises the danger of an erroneous positive diagnosis—a perilous and irretrievable mistake in syphilology.

CEREBELLAR ABSCESS: SYMPTOMS AND DIFFERENTIAL DIAGNOSIS *

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PRELIMINARY NOTE ON BÁRÁNY'S THEORY OF CEREBELLAR LOCALIZATION[1]

Bárány has proved that there are in the cerebellar cortex certain definite centers which have to do with the direction sense of particular joints; or in other words, with the ability to move certain joints without the aid of sight in certain definite planes. Each of these centers exerts upon a particular joint or one of its controlling muscle groups a pull, or tonus, in some definite and constant direction. For each joint there exist separate centers which maintain tonuses in different directions. Thus, there are separate centers which exert, respectively, an inward and an outward pull, or tonus, upon the shoulder, and which confer upon the normal individual the ability to move the arm correctly in the vertical plane without the aid of sight. Logically, in such a scheme we must assume the existence of additional centers for each joint exerting, respectively, an upward and downward

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* Read before the Section on Eye, Ear, Nose and Throat Diseases of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 20, 1916.

[1] This synopsis is included merely for the convenience and orientation of readers who may not be familiar with Bárány's cerebellar work.

pull, which are necessary to correct orientation, or movement, in the horizontal plane. Thus for each of the major joints, for instance, shoulder, elbow, wrist and hip, there are separate centers exerting tonuses, or pulls, in different directions. While all of these centers are assumed to exist, not all have yet been actually located or demonstrated either clinically or by experiment. Two centers which have been definitely located and which are of the greatest diagnostic importance are the centers exerting an inward pull on the wrist and shoulder, respectively. The former (inward tonus upon wrist), Bárány places in the middle inferior lobe (slender lobe) near the flocculus. The center exerting inward tonus upon the shoulder joint is also in the middle inferior lobe, but ten or twelve millimeters behind the former. These two centers are in close relation with that part of the posterior surface of the petrous bone lying between the sigmoid sinus behind and the internal auditory meatus in front, that is, they are in relation to that part of the temporal bone through which an infection from the mastoid or middle ear would reach the cerebellum. Since a majority of all cases of cerebellar abscess are of otitic origin, these are the two centers most likely to be, and in fact most frequently, involved.

Loss of Pointing Accuracy.—The normal individual, with eyes closed can lower either arm, outstretched in front of him, and again elevate it without appreciable deviation from the vertical plane. This may be called normal pointing accuracy.

When the center for the shoulder, inward tonus, is injured either surgically or by disease, the arm corresponding to the lesion no longer moves correctly in the vertical plane, but deviates outward; that is, with a right cerebellar lesion, the right arm deviates to the right; with a left cerebellar lesion, the left arm deviates to the left. This, however, is not by any means invariable in cerebellar abscess, for the cortical centers often escape injury. When present, it is a valuable focal symptom.

Corroboratory Test.—If we stimulate either static labyrinth of a normal person, we invariably produce nystagmus. For example, if we rotate him rapidly to the left or irrigate his left ear with cold water, there invariably results a nystagmus with quick eye movements to the right. If, while this nystagmus lasts, we test his pointing accuracy in the vertical plane, that is, ability with eyes closed to move the arms correctly in the vertical plane, we shall find that both arms deviate to the left, that is, in the direction of the slow component of the nystagmus. This is the invariable normal reaction.

Loss of Normal Vestibular Reaction Resulting from Cerebellar Disease.—Let us suppose a case of right cerebellar abscess in which our tests have shown spontaneous deviation of right arm outward, that is, to the right, the left arm pointing normally. This per se is important evidence of injury to the center for inward tonus upon the shoulder joint. If we irrigate the left ear with cold water or rotate the patient to the left, we shall induce the usual nystagmus to the right. With a cerebellar lesion causing spontaneous outward deviation of the right arm, however, only the left arm responds normally to the vestibular excitation and deviates to the left, the right arm pointing as before to the right, or at least not being drawn to the left.

Epitome: Rule.—Cerebellar abscess with injury to cortical center for inward tonus upon shoulder joint causes spontaneous outward deviation and loss of normal reaction to vestibular irritation in the arm corresponding to the cerebellar lesion.

Theoretically, analogous tests may be applied to other joints, for instance, hip, knee, ankle, and neck, and possibly functional changes in one or more of these joints may coexist with similar changes in the wrist and shoulder. Practically, however, and as a matter of actual fact, no single case has been reported in which a diagnosis was, or could have been, based upon the spontaneous deviation and changes in response to vestibular irritation confined to any joint or joints of the body other than the shoulder or wrist. Possible changes confined to other joints are of theoretic interest, and possibly their value in the localization of obscure tumors may later be established. But for practical diagnosis of cerebellar abscess, when tests of shoulder and wrist show these joints to be functionally normal, the further testing of other joints will be found to be of negligible importance.

The subject assigned to me is so extensive and many sided that only the briefest outline is possible in the time at my disposal.

There is so much yet to be learned as to cerebellar function and physiology that we shall do well to be modest in speaking even of that which is known. Confining our statements strictly to established facts, however, we know that of the suprasegmental or evolutionary brain structures, the cerebellum biologically antedates the cerebrum; that its activities are wholly reflex and subconscious; that the afferent impulses to the cerebellum are purely sensory and fall roughly under two heads, viz., "proprioceptive," or conveying impressions of the changing relations of various parts of the body to each other, and "exteroceptive," relating to the changing positions of the body in space; that the cerebellar function is the correlation and analysis of these various sensory impulses, and their conversion into efferent impulses having to do with the motor coördination and control necessary to normal dynamic and static equilibrium.

We know that as with the cerebrum so also in the cerebellum there are so-called "blind" regions of very considerable extent, injuries confined to which cause no characteristic disturbances of function. Hence the many cases of cerebellar tumor or abscess without focal symptoms. In a preliminary note, reference is made to certain cortical centers in the cerebellar hemispheres, injury to which causes loss of correct direction sense in certain joints. Such disturbances can hardly be regarded as errors of coördination since with the aid of sight the joints involved may functionate normally. There are other cerebellar centers or structures (probably located wholly in the vermis) presiding over the motor coördination of the principal muscle groups of the same side, injury to which causes wide-spread homolateral incoördination of movement, for instance, incoördination ataxia, diadokokinesis, characteristic peculiarities of gait, etc. The functional disturbance in such cases is purely a defect of muscular control, and apparently is due very largely to an inability to confine common voluntary movements within normal limits.

Still another condition must be mentioned because occasionally occurring with cerebellar abscess, though due actually not to structural change in the cerebellum, but to pressure upon motor tracts, viz., hemiparesis of arm and leg muscles (rarely paralysis) which may be bilateral, but much more frequently is unilateral and limited to the side of the lesion. This can be explained only as due to pressure upon pons, medulla or cord. Hemiparesis limited to the side of the lesion Macewen explains by the hypothesis that under pressure by an abscess the cerebellum may be forced somewhat downward into and through the foramen magnum, a situation in which either side of the medulla or even the upper end of the cord may be compressed. Either contralateral pressure above, or pressure on the same side below, the crossing of the motor tracts would explain hemiparesis on the side of the lesion.

From what has been said it would seem that the focal symptoms of cerebellar abscess may be traced very largely to (*a*) injury to cortical centers controlling the direction sense as referred to particular joints; (*b*) injury to cerebellar structures controlling motor coördination, and (*c*) pressure transmitted to motor tracts in medulla and cord.

The symptoms of cerebellar abscess fall naturally under two heads, viz., general and focal.

The General Symptoms.—These, though of great diagnostic importance, can have only brief consideration here. The temperature and pulse changes are those frequently observed with abscess of the cerebrum. The most characteristic temperature chart is one which hugs the normal line, with occasional variations of from a point or two above to a point below the normal. Bradycardia is common as with cerebral abscess. A pulse rate falling at some time within the twenty-four hours to 60, 50 or even 40 probably occurs in at least 33 per cent. of cases. Headache, common to both cerebral and cerebellar abscess, attains differential significance only from this clinical observation: That the headache of cerebellar abscess, once it is established, is more constant, more persistently severe and less variable in its location than are the more indefinite head pains of cerebral abscess. Vomiting is probably common to the onset of all intracranial infections. After the lesion is established, however, vomiting is rare in cerebral abscess, whereas its presence as a recurring symptom is exceedingly common in cerebellar abscess. With meningitis excluded, it may therefore possess considerable diagnostic significance. Nervous and mental symptoms: Insomnia, intractable, not amenable to opiates, and inexplicable by any determinable lesion outside of the skull, is exceedingly characteristic of cerebellar abscess. When subtentorial pressure is markedly increased, drowsiness coupled with inability to sleep is said to characterize some cases. On the other hand, the type of mental lethargy and obscuration, and particularly the delayed cerebration so characteristic of temporosphenoidal abscess are usually conspicuous by their absence. An unclouded mentality in the presence of other signs of intracranial infection would distinctly suggest a cerebellar lesion. Eye ground changes may or may not be present, and may be bilateral or confined to either side. According to Ruttin, papillitis, choked disk and optic neuritis occur far more frequently with cerebellar than with cerebral abscess. With this view Neumann concurs. Macewen states that optic neuritis of such grade as to cause considerable temporary loss of vision is not uncommon in cerebellar abscess. Another condition which marks the disease in certain cases is the very sudden and rapid deterioration of physical tone and condition. Usually accompanied by rapid emaciation, even more conspicuous and characteristic is the indescribable but ominous appearance of extreme and fatal illness.

In occasional association with the cerebellar headache, a condition which when present is most significant, probably has to do with the proximity of the lesion to the great nerve centers at the base of the skull; or perhaps to the hard unyielding bone surfaces upon which the cerebellar hemispheres rest. The patient learns by experience that any sudden or jerky movement of the head causes sharp head pain or at least aggravation of the existing headache. He, therefore, in moving the body holds the head more or less rigidly. In turning in bed, he may even attempt to minimize this effect by supporting the head with the hands. The effort to guard against head jar may influence all the movements of the body, for instance, in walking, changing from a sitting to a standing position, etc. This condition when present is, so far as I know, distinctly suggestive of cerebellar abscess.

The above outline, though meager, will suffice to indicate the importance of careful analysis of the general symptoms, for with complete absence of focal symptoms, one might in the presence of low-grade fever, low pulse rate, recurrent vomiting, persistent occipital headache (with mentality unclouded), reach a fairly logical inference as to the site of a suspected lesion.

Focal Symptoms.—It cannot be too frequently stated that cerebellar abscess with complete absence of focal symptoms is not very uncommon. Let us imagine, however, a case presenting all the classical focal symptoms, which may then, for purposes of description, be mentioned in some regular order.

Nystagmus.—Examination of the eyes shows nystagmus of vestibular type, that is, composed of a quick movement in one direction and a slow return movement in the other. Usually it is rotary or partly rotary in character. While superficially indistinguishable from the nystagmus of labyrinthine disease, it presents certain differentiating features, viz., it is not necessarily constant as to direction; usually it is a changing nystagmus, first to one side and then to the other, the changes in direction being in some cases induced by sudden movements of the head or by the direction in which the eyes are voluntarily turned. As a rule, however, the nystagmus toward the side of the lesion is stronger than that in the opposite direction. A very important differential point is its persistency; usually it is a constant, and in some cases, a gradually progressive symptom (Neumann). This alone would differentiate it from the nystagmus of acute diffuse suppurative labyrinthitis which tends regularly to progressive and fairly rapid subsidence. As the disease advances, it becomes clear that the nystagmus is without influence or bearing upon the ataxia present, or at least upon the direction in which the patient tends to fall.

Cerebellar Ataxia.—Two kinds of static ataxia in cerebellar disease have been observed, viz., (*a*) the temporary type dependent on the nystagmus present. When the nystagmus is first established, the patient naturally experiences subjective rotary vertigo in the plane of the nystagmus, and may tend to fall in the direction opposite to the quick eye movement. But it is a recognized clinical feature of cerebellar abscess that while the nystagmus is usually a constant symptom, the vertigo due to this phenomenon tends to subside and finally to disappear. After this nystagmic vertigo has subsided, there still remains in many cases a type of vertigo and disturbance of equilibrium which bear no relation to the nystagmus present. (*b*) This is the most characteristic type of cerebellar ataxia. The patient, attempting to stand or walk, falls or tends to fall in some definite and constant direction. The falling direction most frequently noted has been toward the side of the cerebellar lesion. It has no necessary relation to the nystagmus present, and is therefore not influenced by changes in the position of the head, as is invariably the case with ataxia caused by acute labyrinthine disease. In this form of cerebellar ataxia the falling direction is usually constant throughout the disease, that is, until recovery or the collapse presaging death.

Incoördination Ataxia.—Unilateral muscular incoördination is a very characteristic, though by no means invariable, symptom of cerebellar abscess. It is shown by a lack of control or precision in the movements of the hand and arm on the side of the cerebellar lesion. It may be elicited as the patient lies in bed by asking him to touch the tip of the nose quickly, first with the right forefinger and then with the left. While able to do this with normal ease and precision with the forefinger of the sound side, the forefinger corresponding to the side of the lesion may either miss the nose by some inches or is brought into contact with it only after a series of to and fro oscillations in its immediate vicinity. This, however, is only a convenient method of demonstrating this form of motor incoördination. Any exercise calling for fine control or exact limitation of movement, for instance, writing, the use of the needle in embroidery, or even the effort to pick up some minute object, may show in some degree the same type of ataxia.

Occasional Peculiarities of Gait.—Naturally with wide-spread muscular incoördination confined to the site of the lesion—and this motor incoördination is always homolateral—the gait may be affected, the muscular efforts both to raise and again to lower the foot and leg corresponding to the lesion being no longer under normal cerebellar control, and therefore taking the form of rather jerky and even exaggerated movements.

Diadokokinesis (Babinski) is probably only another manifestation of the same form of motor incoördination. If the patient is directed to practice any common movement simultaneously with the two hands, finger or wrists, for instance, the finger movements as in piano practice, or rotating both wrists back and forth as rapidly as possible; it will be found that while one hand performs these movements easily and quickly, the hand corresponding to the cerebellar lesion executes the same movements much more slowly and with apparent labor. For example, in trying to rotate the wrists rapidly and simultaneously, in one case coming under my observation the patient executed two rotations with the wrist of the normal side to one on the side of the lesion. In another the ratio was 4 to 1. In both these cases, a cerebellar abscess was successfully evacuated. I can think of no other lesion which would be likely to give rise to this phenomenon.

A patient with a right-sided cerebellar abscess who came under my care presented this interesting symptom. She could wink both eyes simultaneously. She could wink the left eye alone, but she could not wink the right (corresponding to the abscess) alone. When she tried, she always winked both eyes.

Loss of Pointing Accuracy, that is, spontaneous deviation from vertical plane.—Application of test: Let us suppose a case of right-sided cerebellar abscess. Patient, with eyes closed, stands or sits opposite examiner, with right arm outstretched straight in front of him and extended forefinger in contact with that of the physician. He is told to lower hand and arm to dependent position and again elevate it to contact with examiner's finger which has been held stationary in original position. It will be found that the patient's hand, both in being lowered and again in being elevated, deviates outward so that it may miss the examiner's fingers by some inches. The left arm, similarly tested, moves correctly in the vertical plane and is easily returned to its original position.

This spontaneous outward deviation of right arm points strongly to a right cerebellar abscess. The corroborative test must now be applied.

Method of Testing the Reaction to Vestibular Irritation.—Irrigate the left ear, that is, the ear opposite to suspected lesion, with cold water. This gives rise to the usual nystagmus to right, during which normally both arms should deviate to the left. Now quickly, while the nystagmus is still active, test the pointing accuracy, or movement in the vertical plane, of each arm. It will be found that only the left arm moves to the left, the right arm deviating as before to the right or at least not being drawn as normally in the direction of the slow component of the nystagmus, that is, to the left.

These two functional changes, that is, spontaneous outward deviation of right arm and loss of normal reaction to vestibular irritation, are pathognomonic of a lesion of the right cerebellar hemisphere.

While the tests of other joints are of theoretic interest, experience has shown that for practical purposes of diagnosis the above tests of the shoulder joint are sufficient; that is, if positive, no additional light will be gained from tests of other joints; if negative, so also will be the tests of other joints.

Hemiparesis is present in only a small percentage of cases. When present, it is possible that a careful observer may note a comparative slowness, languor or effort in the movements of the hand and arm corresponding to the lesion. If the patient is required to squeeze the examiner's hand first with one hand and then the other, a comparative loss of power is noted in the hand on the side of the lesion. If a more exact gauge be required, a dynamometer may be used.

This symptom, when present, may be of peculiar differential significance from the following facts: (*a*) In cerebellar abscess, hemiparesis is most often homolateral; in temporosphenoidal abscess it is always contralateral; (*b*) in cerebellar abscess both upper and lower limbs are involved; in temporosphenoidal abscess, pressure is transmitted to the motor area of face, arm and hand, and not at all, or only in the slightest degree, to that of the leg and foot; only the upper extremity is therefore involved. Facial hemiparesis is not easily detected.

Catalepsy. — A rare symptom of cerebellar disease which I have never seen is described as a cataleptic condition of the arm and leg on the side of the lesion. It is present when the arm or leg, placed passively in some unusual position, does not yield at once to the force of gravity, but holds the position sometimes during a period which would cause unbearable strain on a normal person.

Speech defects are not very uncommon in cerebellar abscess. Macewen describes this as a slow, labored, syllabic speech. In a case coming under my care, the patient whose mentality was throughout unusually clear, developed a peculiar lisp of which she was perfectly conscious and for which she repeatedly asked an explanation. It disappeared completely within forty-eight hours after the abscess was evacuated.

In the foregoing pages I have described an array of focal symptoms such as probably no single patient ever presented. In dealing with a case of suspected intracranial disease the general symptoms often suggest the clue, and we are lucky if our most careful search reveals two or even one positively focal symptom.

I saw last month in consultation with a confrère an interesting case, the salient features of which were as follows:

The patient had developed mastoiditis with suppurative labyrinthitis, for which first a mastoidectomy and then a labyrinth operation had been performed. Some days following the labyrinth operation the nystagmus, which naturally had been toward the sound ear, suddenly changed its direction toward the ear operated on. When I first saw him, the patient showed a changing (i. e. alternating) nystagmus and had the appearance of very grave illness. The pointing tests showed no deviation of either arm. The mentality was unclouded. There were, however, moderate incoordination ataxia and moderate diadokokinesis of arm and hand corresponding to the side operated on. On the history, the sequence of the nystagmus changes and the two focal symptoms, I strongly advised an operation. This was performed later in the day with the evacuation of several drams of pus.

Differential Diagnosis.—The only two lesions with which cerebellar abscess is really likely to be confused are cerebral abscess and acute diffuse suppurative labyrinthitis. I shall omit the time-honored but misleading arrangement of symptoms in parallel columns. Instead I shall try to summarize what seems to me the most important and useful differential points.

DIFFERENTIAL POINTS BETWEEN CEREBELLAR ABSCESS AND TEMPOROSPHENOIDAL ABSCESS

Recurring vomiting, common in cerebellar abscess, is exceedingly rare in cerebral abscess.

Nystagmus, a frequent phenomenon in cerebellar abscess, is never caused by cerebral abscess.

Characteristic cerebellar ataxia with tendency to fall constantly in one direction is peculiar to that lesion; though some disturbance of equilibrium due to increased pressure may occur in cerebral abscess.

Unilateral incoördination ataxia and diadokokinesis, not uncommon in cerebellar abscess, are not characteristic of cerebral abscess.

Hemiparesis, occasionally present, is most often homolateral in cerebellar abscess, whereas in cerebral abscess, it is always contralateral. In cerebellar abscess both upper and lower limbs are involved; in temporal lobe abscess, the leg usually escapes.

Speech defects, drawl, slow "syllabic" speech, lisp, are occasional symptoms of cerebellar abscess, which are not characteristic of cerebral abscess.

An unclouded mentality is characteristic of cerebellar abscess; mental dullness, almost to obscuration but without perversion, and frequently retarded or delayed cerebration, are characteristic phenomena in cerebral abscess.

Various forms of aphasia and occasional contralateral paralyses, which occur in some cases as focal symptoms of cerebral abscess, do not occur in cerebellar abscess.

When focal symptoms are present, the above lesions may be easily distinguished; when absent, a positive differentiation may be difficult or impossible.

DIFFERENTIAL POINTS BETWEEN CEREBELLAR ABSCESS AND ACUTE DIFFUSE SUPPURATIVE LABYRINTHITIS

Cerebellar abscess resembles labyrinthitis only when nystagmus and associated phenomena are present, and then only the acute stage of suppurative labyrinthitis. When the acute stage of suppurative labyrinthitis has passed, all similarity disappears.

Nystagmus in diffuse suppurative labyrinthitis is always toward the sound ear; in cerebellar abscess, it may be alternating or in either direction, but is usually strongest toward the side of the lesion. Nystagmus tends to subside rapidly in labyrinthitis; it is persistent and sometimes progressive in cerebellar abscess.

Disturbance of Static Equilibrium.—In acute suppurative labyrinthitis the patient tends to fall always in direction of slow nystagmic movement and therefore toward the sound ear. In cerebellar abscess, as the disease advances, the falling direction is often quite independent of the nystagmus, and is constant in direction. Most frequently the falling direction is toward the side of the lesion.

There is absolute deafness of involved ear in diffuse suppurative labyrinthitis; in cerebellar abscess the hearing is not impaired unless the abscess is secondary to a suppurative lesion of the labyrinth.

Caloric test: Vestibular apparatus does not respond to irritation by heat or cold in suppurative labyrinthitis; it responds normally in cerebellar abscess uncomplicated by labyrinthine disease.

All the characteristic symptoms of the acute stage of suppurative labyrinthitis tend to subside rapidly. The symptoms of cerebellar abscess are persistent and tend to increase rather than subside.

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INFECTIVE SINUS THROMBOSIS*

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The title of this paper correctly implies that it is quite possible to have a noninfective thrombosis of the sinuses such as the marasmic.

Although any of the intracranial sinuses may be involved, the lateral and especially the sigmoid portion of it is the one which is most frequently infected because of its proximity to the tympanum and its long course along the inner wall of the mastoid process. Less often the superior and inferior petrosals or cavernous sinuses are affected and from any of them there may be an extension into the jugular.

The infection usually extends from an acute or chronic purulent otitis media and the mastoid is generally diseased, although the infection may pass directly to the sinus through the small vessels of the temporal bone without macroscopic change. It is well to remember that the mastoid may have been inflamed, but because of the arrangement of its natural drainage channels, the inflammation may have largely subsided, except in an area far from the antrum, for instance, the region of the sinus. Occasionally the infection passes directly through the floor of the tympanum to the adjacent bulb of the jugular. This is especially true in cases of acute otitis media and particularly in children, because of the very thin plate of bone covering the bulb at this time of life.

Infection of the cavernous sinuses is usually secondary to that of the petrosals, although it is well to remember that it may be a complication of an infection of the face, orbit or nose and its accessory sinuses.

In operating on the mastoid it is not unusual to find a destruction of the inner table with pus bathing the sinus wall or even a phlebitis of the sinus, the inflammation involving one or more coats of the vein; yet it is only the disturbance of the intima which favors the clotting of the blood and produces either a parietal or an occluding thrombosis. This clot usually becomes infected and then disintegrates, infecting the blood stream and causing pyemia and abscesses in various parts of the body.

Under symptomatology, we have, first, the signs of purulent otitis media and mastoiditis, and it is well to remember that tenderness or swelling in the region of the mastoid emissary vein has a special significance in that it suggests at least a perisinous inflammation. Swelling and tenderness along the jugular is sometimes present in these cases and is probably due to inflamed lymph nodes rather than directly to an inflamed jugular, although the adenitis may be secondary to a phlebothrombosis of the sinus or of the jugular. Distention of the external jugular vein occurs when the thrombus obstructs the internal jugular.

Cavernous sinus thrombosis causes exophthalmos, chemosis, swelling of the eyelids and optic disk and sometimes paralysis of the motor oculi, abducens and trochlear nerves. The ocular symptoms soon become bilateral as the infection promptly passes through the circular sinus to the other side.

Our most reliable symptom of the phlebothrombosis of any sinus is the temperature. This must be taken every two or three hours in suspected cases or some of the variations will be missed; and it is upon these sudden and marked changes that our diagnosis is usually based. In typical cases it is of the intermittent or remittent type changing within a few hours from near normal to 104 or 106 F. and as suddenly dropping. Exceptionally it remains high with slight variations.

Chills are significant and common in adults, but their absence is of little diagnostic importance. Even a chilly sensation is of some import. The chill is commonly followed by perspiration. It must be remembered that a phlebitis without a clot will cause the same type of temperature and chills. The pulse keeps pace with the temperature.

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* Read before the Section on Eye, Ear, Nose and Throat Diseases of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 20, 1916.

Recently there has been considerable discussion pro and con in regard to the value of blood cultures in the diagnosis of the subject under consideration. Libman and Cellar found the blood cultures positive in 77 per cent. of the thirty cases of thrombosis examined and negative in all other otitic complications except meningitis. Oppenheimer obtained practically the same results. On the other hand, Duel and Wright obtained positive blood cultures in approximately 20 per cent. of otitic cases without sinus involvement. Sondern reports positive blood cultures in six cases of uncomplicated mastoiditis but believes this is unusual, and that a proper surgical treatment of the mastoid and middle ear should bring about a decrease and disappearance of the bacteremia in such cases. If the number of colonies increase in subsequent blood cultures, it is strong presumptive evidence that an extension of the invasion has occurred. He maintains that blood cultures are positive in a very large percentage of cases of thrombosis and that secondary meningitis, brain abscess or even an extradural suppurative focus may give positive cultures. While the writer believes that a positive blood culture is of great value in establishing the diagnosis of infective sinus thrombosis, he would hesitate to operate on that evidence alone. In his experience, the diagnosis has usually been made from the clinical symptoms before the blood culture was reported positive.

Although not infallible, repeated blood counts, especially differential counts of the leukocytes, are of very great value in making the diagnosis and in determining the progress of the disease. The leukocytosis is usually about 15,000 or 16,000, of which the polynuclears constitute about 80 or 90 per cent. An increase of the latter is a danger signal not to be disregarded while an increase of the former may indicate only good resistance and, conversely, a decrease of the leukocytes may mean an overwhelming of the patient. We must always remember that a relatively high polynuclear percentage may mean pus in other parts of the body and that in certain diseases such as pneumonia, scarlet fever and erysipelas it may be caused by the disease itself independently of complications.

Optic neuritis has been variously reported in from 8 to 50 per cent. of the cases. In the writer's experience the former is more nearly correct. Its presence corroborates other symptoms of thrombosis but, as it occurs in meningitis, brain abscess and many other conditions, its value in differential diagnosis is limited.

When headache is present it is not sufficiently characteristic to be of much diagnostic value; if severe, it suggests an extensive local or a general meningitis.

Recent improvements in the taking and reading of Roentgen-ray plates make them necessary in doubtful cases. About a year ago the writer had a case in which they showed a clot in the sinus and we operated in spite of largely negative ear symptoms, finding the clot just where the plates indicated. The mastoid was normal macroscopically.

The spleen may be swollen, and late in the disease the facies may show the effect of sepsis, the conjunctivæ having a yellowish tinge, the skin sallow, dry or profusely leaking and the tongue heavily coated.

Metastasis occurs rather late as a rule and causes symptoms peculiar to the parts involved, most frequently a pneumonia, abscess or gangrene of the lungs, an arthritis or periarthritis, abscesses in the subcutaneous connective tissue or nephritis. Diffuse meningitis or brain abscess may be caused by continuity.

Usually the symptoms are sufficiently typical to enable us to make a correct diagnosis or are not so urgent that they preclude a few days' study of the case while differential leukocyte counts are made daily, blood cultures taken, the blood examined for plasmodium malariæ, the abdomen and blood for evidences of typhoid fever, the lungs for pneumonia and tuberculosis and the heart for endocarditis. This delay has the advantage of allowing time for the development of additional symptoms of other diseases which cause septic temperature and chills; for example, Phillips reports such a case in which he opened the sinus and found it normal — the next morning erysipelas was evident.

Occasionally it is necessary to uncover and examine the sinus. The absence of pulsation, with a doughy sensation on palpation indicates a clot within the vein, but pulsation may still persist in the presence of a small clot. Stripping of the sinus is of value in making the diagnosis, but there is a possibility of dislodging fragments with their escape into the general circulation, even if the jugular is compressed during the manipulation.

Aspiration is of doubtful value. Loss of the normal blue color and luster with red, yellow or grey discoloration, uneven thickening or granulation tissue may mean only a phlebitis so that even the direct examination of the sinus may leave one in doubt. However, such cases are rare, and further observation will usually enable one to establish a correct diagnosis. As a last resort, with threatening symptoms we are justified in opening the sinus.

Although nearly 40 per cent. of the fatalities caused by intracranial complications of ear diseases are due to infective sinus thrombosis, the prognosis is guardedly favorable if operated on early, that is, before the clot has become extensive.

The treatment is mainly surgical. Although cases occasionally recover without operation, this is the exception and it is not safe to depend on it. Lemon juice has been used to prevent clotting. As soon as the clot is found it is usually best to separate it from easy access to the general circulation by ligating the jugular. The ligation of the vein does not greatly prolong the operation, unless it is collapsed, cordlike or covered by very large lymph nodes. It is not always necessary to prolong the operation by resection of the vein.

The abnormal temperature often continues for some days after ligation and removal of the clot and the sepsis which has already taken place may need combating with salt solution, transfusion of blood and stimulants. Operations upon the cavernous sinuses have generally been unsuccessful and an occasional case with symptoms of this complication has recovered without surgical interference.

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TEMPOROSPHENOIDAL ABSCESS *

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From the combined estimates of many authors (Macewen, Politzer, Koerner, Oppenheim, Heimann, Okada, Heine, Friesner and Braun, Dench and others), the vast majority of abscesses of the brain are otitic in origin. The chronic form of middle-ear suppuration is more often responsible than the acute (Heimann, 457 chronic to 113 acute), for the reason evidently that in the chronic form there is a greater destruction of bone; besides in the chronic form of middle-ear suppuration there is a tendency to the formation of a cholesteatoma, which in the course of its growth causes a pressure absorption of the surrounding walls and eventually opens up gateways for the egress of infectious material from the middle ear to the neighboring cavities. Since the tegmen tympani is frequently the thinnest wall, the middle cranial fossa is naturally most prone to invasion. According to the lowest estimates (Koerner, 63 to 31, and Neumann, 63.4 per cent. to 36.6 per cent.), temporal lobe abscess occurs about twice as often as cerebellar abscess, while according to the highest figures, those of Dench (17 to 4) it occurs four times as often. A fair average taken from all authors would indicate that temporal lobe abscess occurs a trifle more than three times as often as cerebellar abscess.

Thus we see that the subject of temporosphenoidal abscess is one of no small importance for consideration by this section, composed largely of otologists.

Concerning the development of brain abscess occurring in the course of acute middle-ear suppuration, it is found frequently in those cases where the tympanic membrane has remained intact and the frank symptoms of acute middle-ear suppuration or mastoiditis have been absent. The cause of abscess of the brain in these cases is three-fold: (*a*) Anatomic, in that the tympanic membrane is abnormally thick and unyielding, due to the presence of organized exudate on its inner surface left there by previous attacks of exudative or secretory catarrh; a further anatomic factor is the presence of an unusually thick external corticalis covering the mastoid spaces; (*b*) the nature of the infecting organism and its strain, for instance, the streptococcus mucosa is notoriously insidious in its tendency to spread without producing any marked reaction to circumscribe its course, the infection seems to gather force as it spreads, or else the individual loses resistance; (*c*) the susceptibility of the host to a particular infection and his lack of vitality to resist diseases generally. It is these three factors which determine the course of a middle-ear infection, when once started.

Given a case of infection of the middle ear with a very virulent organism in an individual of low immunity and feeble vitality, the infection spreads rapidly and in a few days the patient succumbs to meningitis before the tympanic membrane has had time to rupture, especially so if the membrane had been previously thickened. In another case of the same organism in an individual with relatively higher immunity, however less than sufficient to prevent infection and with stronger vitality, the infection will be more promptly limited and the tendency to complications thereby lessened.

There are many possible combinations of these factors and other lesser ones not mentioned, both in kind and degree, that determine whether there is to be a complication or not, and, when there is, its character. In the treatment of a case of middle-ear suppuration we should consider every one of these etiologic factors with the aim, not only to cure the middle-ear suppuration, but to thwart possible complications.

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* Read before the Section on Eye, Ear, Nose and Throat Diseases of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 20, 1916.

According to Macewen, if the inflammatory process be slow, mild and distinctly localized, involving a portion of the inner table of the skull, then an external pachymeningitis may form, possibly with pus between the dura mater and the bone producing an extradural abscess.

> "Should this condition persist, adhesive inflammation is apt to spread to the inner side of the dura, which may result in a soldering of the inner membranes, the adjacent arachnoid, and even the pia becoming adherent by the fibrinous meshes of the plastic exudate. Once this occurs, general leptomeningitis is guarded against. This localized soldering of the membranes, once the adhesion has become firm, may act as a barrier to the ingress of fresh infective matter to the general subdural cavity and to the brain itself.
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> "After adhesive inflammation has brought about a localized soldering of the soft membranes to the dura, should an increase of the inflammatory action take place sufficient to induce a degenerative inflammation, those membranes with their inflammatory effusion may soften and in the subdural space pus may form which is prone to be followed by disintegration of the pia and sequent superficial ulceration of the brain tissue. Two conditions may thus result. Should the pia mater remain intact a subdural abscess may thus result. Should the process extend to purulent softening of the pia and adjacent brain tissue, then cerebral ulceration ensues, the disintegrating products being confined peripherally by the membranes and by the brain on the inside. In either case the abscess is at first confined to and enclosed laterally within the area of the soldered membranes. Should the abscess enlarge considerably, and the disintegrating process affect the adherent membranes now forming the abscess wall, it is possible that the disintegrating inflammation may spread laterally into the subdural space, or the abscess may burst into it, thereby setting up an acute leptomeningitis.
>
> "If the cause of the inflammation penetrates through the outer layer of the dura mater into the wide-meshed capillary network of its inner layer before soldering of the membranes has occurred, the whole subdural space is open to invasion and an acute far-reaching leptomeningitis is apt to ensue."

This much of the pathology of the intracranial complication of middle-ear suppuration I have quoted literally from Macewen, for the reason that he was the first to give it. His opinions were based on a large experience and have been accepted by the best authorities in all countries.

Abscess of the brain including that of the temporosphenoidal lobe may be superficial as described above by Macewen, or they may occur deep in the brain substance with an intervening layer of relatively normal brain between the abscess and the skull fossa. Deep abscesses result generally either from the disintegration of a thrombus of a vein communicating between the middle ear and the brain substance by a process of so-called reflex propagation, according to Macewen, or by the perivascular sheaths of the arteries.

In case of thrombosis of the superior petrosal sinus the veins that empty into it from the cranial side are prone to become thrombosed, and later if the thrombus becomes softened the infectious material may reach deep into the brain substances of the temporosphenoidal lobe. Thrombosis is not an infrequent complication associated with brain abscess. It may precede, follow or occur simultaneously with brain abscess. According to Uchermann, sinus-phlebitis forms a not infrequent link between mastoiditis and brain abscess, especially cerebellar. The superior petrosal sinus acts in a similar capacity between the middle ear and temporosphenoidal lobe.

It was the opinion of Politizer and his school that intracranial complications of middle-ear suppuration tend to be multiple. He taught, and so did Alexander, that abscess of the brain in the chronic cases was frequently preceded by an extradural abscess, and that a fistulous canal connected the two. With our present-day knowledge of abscess of the brain, it is doubtful if this occurs in the majority of the cases as was thought to be the case several years ago. Heimann found that in 645 cases of brain abscess taken from the literature, 309 showed other intracranial complications. If we were to include labyrinthine suppuration as an intracranial complication, no doubt the percentage would be much larger. The same author found one case in which there was a combination of cerebral and cerebellar abscess. In most cases of brain abscess there occurs in its earlier stages at least a circumscribed meningitis of the serous type, while in the terminal stage in those cases in which the patient does not succumb to exhaustion or a complicating sinus thrombosis, a diffuse suppurative meningitis is the rule. Because of the tendency to multiple complications, including suppuration of the labyrinth (in a case seen by Dr. Sears and myself), abscess of temporosphenoidal lobe affords an opportunity for the unraveling of a tangle of symptoms. In any case with the multiplicity of symptoms present in complicated brain abscess, the symptoms of the one complication may nullify or accentuate the symptoms of the other. Furthermore, in a case of multiple complications the symptoms of one may be so pronounced as to obscure those of the other, in which case the complication presenting the minor symptoms may be entirely overlooked.

Abscess of the brain may occur in an acute form, running its course to a fatal termination within a few weeks, or, on the other hand, when it becomes encapsulated, it may last for months or even years. As a rule, the older the abscess, the thicker the capsule tends to be. The character of the infecting organism no doubt influences the course and determines in a measure the presence or absence of a capsule. According to Neumann, diplococci favor the formation of a capsule, while anaërobic bacteria do not. Ghon, who performed the autopsies on fatal cases of brain abscess for the Politizer clinic, found that anaërobic infection showed no tendency to form capsules; besides they are extremely foul smelling.

Macewen divides the course of a brain abscess into three stages: the initiatory period, the second period and the terminal period. All other authors accept a latent stage between Macewen's first and second. Concerning the so-called latent stage, Macewen says that it is a phrase often used in textbooks and by writers on cerebral abscess. It is difficult to understand to what this precisely refers and it is apparently used in various senses by different writers. If it be applied to an acute abscess, it can only be to the second period, in which there is a lowering of the temperature, slowing of the pulse, and a general blunting of all the senses. If, on the other hand, the phrase be used to indicate a period in those much rarer cases, chronic encapsulated abscess, which remain quiescent for years, surrounded by a layer of connective tissue, then it is quite appropriate, as the symptoms may disappear along with the subsidence of the encephalitis surrounding the capsule, and only reappear when fresh encephalitis supervenes in the periphery.

The symptoms found in abscess of the temporosphenoidal lobe may be divided into (1) those originating from the primary infection of the middle-ear spaces; (2) cerebral pressure symptoms common to any intracranial affection capable of producing increased pressure; (3) focal or localizing symptoms due in some instances to a stimulating irritation from congestion, in other instances (somewhat late) to the suppression or loss of function from destruction; (4) distant symptoms (Fernwirkung of the German authors) usually produced by pressure, for instance, the jamming of the medulla against the opposite rim of the foramen magnum or a nerve against its foramina; (5) associated complications including sinus thrombosis, suppuration of the labyrinth, circumscribed or diffuse meningitis, extradural abscess, etc.; (6) toxemia from the absorption of the products of the abscess and to perhaps other influences yet unrecognized, not forgetting existing, perhaps latent systemic disturbances, that become more manifest by reason of the increased load thrown upon the organism through the presence of the brain abscess.

The first or initial stage of temporosphenoidal abscess is quite abrupt in its onset and is associated with a chill and a moderate rise of temperature, pain in and about the ear, or an increase in the pain where it had been present before. There is usually a rather sudden diminution in the ear discharge. In those instances of acute abscess with intact membrane, of course, this change in amount of the discharge is not manifested. There is usually some headache which generally may be localized in the region of the affected lobe. Tenderness over the affected area is quite common; this tenderness is elicited by finger percussion. There is loss of appetite and occasional vomiting; however, the vomiting is more often found in abscess of the posterior fossa. The vomiting, when present, is usually cerebral in character; that is, projectile without nausea, and independent of the quantity or nature of the food taken. Vomiting with pronounced nausea may be present where there is a complicating labyrinthine involvement, in which case there is associated vertigo and nystagmus, but this combination is rather rare in temporosphenoidal abscess, whereas it is fairly common in cerebellar abscess. The tongue is usually coated heavily, is dry, and the breath offensive, the odor resembling that of the discharge from the ear. General convulsions occur occasionally.

When the rise in temperature and pulse is fairly high and the headache is excessive with cerebral vomiting and convulsions, there is probably an associated meningitis. When these symptoms abate, as they sometimes do, the meningitis is of the serous type. When the chill is followed by excessive rise of temperature and pulse, which subsequently drops rather suddenly, to be repeated again, the probability is that there is an associated sinus thrombosis.

In the uncomplicated temporosphenoidal abscess the patient's symptoms tend to lessen somewhat in their intensity and the case enters the second or latent stage which may last a variable period, from twelve or sixteen hours to several months and even years (Oppenheim).

According to Macewen, the lessening in the intensity of the symptoms is due to a dulling of the senses from the encephalitis.

During the latent stage of chronic abscess there are few, if any, symptoms. But few cases of uncomplicated temporosphenoidal abscess reach the otologist during the first or second stage, and when they do, they are seldom recognized. In the very acute forms where the patient has been compelled to keep to his bed from the very start, there is greater opportunity to study the case early.

During the manifest stage there are plenty of symptoms as a rule. On the other hand, abscess of the brain is possible with but few symptoms. Politzer mentions two cases of cerebellar abscess that presented, during life, no symptoms, but which terminated fatally upon the patient sitting upright in bed.

Among the many symptoms found in the manifest stage may be mentioned headache, pain in and about the ear and affected region, tenderness, subnormal temperature, slowness of the pulse rate and respiration, loss of appetite, vomiting, loss of weight, slow cerebration, convulsions usually epileptiform in type, pupillary changes, extra-ocular muscle paresis, thickly coated tongue, offensive breath, constipation, choked disk or optic neuritis, retention of urine with overflow, vomiting, contralateral hemiparesis, hemiopia, characteristic posture with the hand applied to the head over the abscess area, sensory aphasia together with blood and spinal fluid changes.

The terminal stage may come on gradually when the patient passes into a coma and dies from exhaustion, or the terminal stage may be reached rather abruptly from rupture of the abscess into the ventricles or on the surface, and the patient succumbs to meningitis. In rarer cases the abscess spreads to a sinus with resulting infective thrombosis, when the patient dies of the symptoms characteristic of this complication.

For the otologist the third or manifest stage is the most important, for the reason that it is in this stage when we are first called to see the patient and conditions are most favorable for a correct diagnosis, and at the same time when it is not too late to render service. It is fitting, therefore, at this juncture to review briefly the symptoms and signs of the manifest stage in the order of their frequency and importance as diagnostic aids.

Headache is perhaps the most frequently observed and recorded symptom. It may be dull and heavy, causing the patient to hold his head and moan, or it may be sharp and excruciating, causing the patient to cry out. Macewen claims that the pain is less intensive in this stage than in the first stage. The headache is generally located in the temple. Occasionally it may be referred elsewhere. The headache is characteristically unilateral with its greatest intensity referred to the temporal region.

Pain is felt in the region of the ear and about it. It is difficult for a patient to distinguish between a pain in the temporal bone and a headache, and I am not quite sure that any one else can describe it. We generally refer to pain as something more acute and circumscribed than an ache. The pain referred to an abscess is quite localized and is due to the circumscribed encephalitis surrounding the abscess cavity and the meninges when they are involved. The unilateral headache, no doubt, is due to the increased intracranial pressure. Furthermore, there is added cause for headache from the absorption of the toxins accumulated in the softened areas of the abscess and retained fecal matter in the bowel, for constipation is the rule in these cases. In a few isolated cases pain has also been referred to the opposite side of the head (Macewen, page 131).

Tenderness is quite a constant symptom in this stage. It is elicited by finger percussion; it is relatively deep seated and is most intense over the region of the abscess, especially when the abscess is superficial. In many cases the whole side of the head corresponding to the abscess is decidedly more sensitive than the opposite side. The writer has found this symptom quite consistently in brain abscess cases independent of the fossa involved and is forced to accept the symptom of unilateral tenderness as quite characteristic of brain abscess.

Subnormal temperature is quite characteristic of uncomplicated brain abscess. This is an especially important symptom in a patient with a running ear, presenting symptoms suggesting intracranial complications. All other intracranial complications of middle-ear suppuration show a rise of temperature. In the initial and terminal stages of brain abscess there may be a rise of temperature, but not in the manifest stage. A rise of temperature in the manifest stage of abscess is an indication of complication in the form of meningitis or thrombosis, either of which may mean the beginning of the final stage. When a brain abscess is emptied by an operation the temperature may mount two or three degrees within a few minutes. An early return to a lower temperature after operation indicates retention of secretion and calls for prompt redressing.

Slowing of the pulse rate is an important sign of brain abscess. Oppenheim (page 985) refers to it as "der wichtigsten Zeichen." It may drop as low as thirty per minute. The pulse behaves like the temperature during the emptying or refilling of the abscess; that is, it increases after the abscess is emptied and diminishes when it refills. Quickening of the pulse indicates an early termination from a complicating meningitis.

Slowing of the respiration is comparable with the temperature and pulse in that all are diminished. The respiration in some cases has been reported as low as ten and eleven per minute. The respiration tends to be slower in abscess of the cerebellum than in abscess of the temporosphenoidal lobe. There is a tendency to paralysis of the respiration. Cases have been reported where respiration has ceased while the heart continued to beat for hours after respiration had been continued artificially (twenty-four hours in one case observed by Macewen). Cheyne-Stokes' character of respiration may occasionally be noted, but more frequently in cerebellar abscess.

Anorexia is quite a constant symptom. Alexander laid a great deal of stress upon this symptom in his lectures to postgraduate students. The patient requires to be encouraged to take his fluid nutriment (Macewen, page 138).

Vomiting may be present in temporosphenoidal abscess, but is more frequently found in cerebellar abscess. When present, it occurs as a result of a "Fernwirkung" from local pressure or to toxemia. In either instance the action is upon the pneumogastric centers. The vomiting is cerebral in character, that is, projectile and without nausea. Less frequently, vomiting with nausea may be occasioned by vertigo in those cases complicated with labyrinthine involvement.

Constipation is the rule in brain abscess independent of its location. It is due to diminished peristalsis. It is well to remember that in the manifest stage of brain abscess everything slows down. If diarrhea occurs it indicates a complication, usually thrombosis.

Retention of urine with overflow occurs in the late manifest stage and should be watched for, to see that the bladder is emptied at regular intervals with clean instruments. The cause is due to a paretic condition of the muscles of the bladder.

Thickly coated tongue is a fairly constant symptom in the manifest stage of brain abscess. The coating becomes thicker as the disease advances and the tongue is protruded with increased difficulty. The coating is usually brown in color. The mouth, generally including the teeth, becomes more or less coated and dry, while the breath assumes a foul odor. In the early manifest stage the patient is more or less conscious of his offensive breath.

Grayish color of the face together with the expression is more or less characteristic of the manifest stage. It is quite different from the ichorous color found in thrombosis. The color and facial appearance we meet with in brain abscess immediately suggests that of profound illness.

Loss of body weight even to marked emaciation is the rule. No other disease without high fever or diarrhea presents emaciation so marked as in abscess of the brain. The loss of weight is out of proportion to the lack of nourishment taken. This symptom together with headache, diminution of the temperature and slowing of the pulse rate in a case of middle-ear suppuration is quite sufficient upon which to base a diagnosis of brain abscess.

Slow cerebration is characteristic of brain abscess independent of location. The patient is slow in answering questions, but answers them correctly, excepting in the case of left-sided temporosphenoidal lobe involvement. The patient begins answering questions put to him about the time you are ready to repeat the question, believing he has not understood it. He answers slowly in a deliberate monosyllabic sort of fashion, and if the answer necessitates a long sentence, he gradually slows up near the end, and may go to sleep before he has completed it. He answers like one who is doped.

Apathy, both physical and mental, is characteristic of this stage. The patient is indifferent to his surroundings. It requires considerable effort for him to exert himself. There is diminution of strength, but his apathy holds him back from using what reserve he has. The apathy is associated with a drowsiness from which he can be more or less readily awakened, but later it deepens into a coma.

Coma is the result of the toxemia, and it becomes more profound as the terminal stage approaches. It resembles the coma of uremia and some few cases, seen late, have been thus misdiagnosed.

Optic nerve changes are found not infrequently in brain abscess. In some instances the picture resembles more that of choked disk, but more often that of optic neuritis. Changes in the optic nerve are generally more frequent in cerebellar than temporosphenoidal abscess. Changes in the disk are more frequently found in brain tumor than in temporosphenoidal abscess, since in case of tumor a greater length of time is permitted for the development of these changes. From the statistics of various authors perhaps less than half the number of brain abscess show appreciable optic nerve changes. If we were to include in the list of changes the minor ones, I believe the percentage would be much larger. Among the changes are overfilling and increased tortuosity of the veins of the retina. Fundus changes may occur on one or both sides. When both sides show changes, the side corresponding to the abscess shows the changes more intensive. In exceptional instances the reverse may be the case (Macewen, page 141).

Pupillary changes are the rule in this stage. These changes are of two kinds, either spasmodic myosis or paralytic mydriasis. Spasmodic myosis produces a pupil relatively narrow, which does not dilate as the normal or its fellow does, whereas in paralytic mydriasis the pupil is dilated and does not contract as it should under the stimulation of light. The myosis is due to the influence of irritation from the congestion surrounding the abscess. The myosis often precedes the mydriasis when the abscess spreads and destruction occurs in the surrounding irritative zone. The pupillary change, whether it be myosis or mydriasis, as a rule, shows itself first in the eye corresponding to the side of the lesion.

Strabismus occurs rather infrequently. When present, it is more often divergent than convergent, due to involvement of areas or tracts innervating the third nerve. It indicates a wider area of involvement than in those cases where the pupillary changes alone are met. Convergent strabismus from involvement of the sixth nerve is more frequently found in cerebellar than temporosphenoidal abscess.

Facial muscle involvement is not uncommon in temporosphenoidal abscess. It may be of the same or the opposite side. When the facial nerve is involved on the same side, it may be a mere coincidence, since the same destructive process in the middle ear that caused a destruction of the bony tegmen may have involved also the facial canal. In this case the facial paralysis is in no way connected with the abscess in the temporosphenoidal lobe. Characteristic of facial paralysis of the same side we find all the muscles supplied by the seventh nerve involved and the reaction of degeneration present. On the other hand, when the opposite side is involved, the paralysis is often preceded by twitchings. The extent of the involvement is less and the weakness of the muscles less pronounced than in peripheral lesion; furthermore, there is no reaction of degeneration obtainable. Paresis of the facial muscles of the opposite side indicates an extensive abscess that penetrates deep toward the internal capsule. Twitching of the facial muscles is more frequently found than actual paralysis.

Convulsions sometimes occur in the manifest stage, but usually late; they are more often of the so-called Jacksonian type and afford some suggestion as to the location of the lesion. They may be produced by pressure, "Fernwirkung," or may result from the leaking of the infectious material from the abscess into the subdural spaces toward the motor area. That they may be due to pressure is evidenced by their cessation after emptying the abscess and their recurrence after refilling of the abscess where the drainage has been poorly maintained. When a circumscribed or diffuse meningitis complicates the abscess the convulsions are more apt to be general and associated with loss of consciousness.

Controlateral hemiparalysis occurs frequently in the late tertiary or final stage. It may result, too, from pressure as indicated by return of function after effectual drainage is established. In temporosphenoidal abscess the pressure is effected generally in the cortical motor area or in the region of the corona or interior capsule, while in the cerebellar abscess paralysis may result from pressure on the medulla in the region of the foramen magnum. In other instances the paralysis may be due to actual involvement of the motor tracts through the extension of the abscess.

Increase in the reflexes, hyperesthesia and ankle clonus are mentioned prominently by Alexander in this stage. Macewen, on the other hand, considers the reflexes "to be so uncertain that little dependence can be placed on the variations which they present."

Differential cranial percussion note is referred to by Macewen. He devotes several pages to its importance evidently believing the altered percussion note to be an important sign in the differential diagnosis of intracranial lesions. Apparently no one else has studied this sign, or else after having done so, thought little of it, for they do not refer to it in their writings. Since Macewen is so accurate in everything else, the percussion note, no doubt, is of value at least in his hands. The percussion note in brain abscess of considerable size in a skull not too thick varies on the affected side from that on the normal. However, since having no personal experience with this sign, I can do no better than to refer those interested to the observations of Macewen, who has made rather extensive observations in all types of cases, normal and pathologic.

Aphasia is mentioned by all authorities as being a symptom of diagnostic value in temporosphenoidal abscess of the left side. Its absence is of no significance. In five out of eight cases of left-sided abscess observed by Dench, the symptom was absent; two of his cases, however, were Italians who spoke practically no English, and consequently the determination of this symptom would have been rather difficult. In one of Dench's seven right-sided cases agraphia was present, the patient being left-handed. Macewen claims that "it is of diagnostic importance to differentiate the variety of aphasia. If it be sensory (word deafness) the posterior half of the first temporal convolution would be involved, hence the abscess would probably be situated toward the posterior aspect of the temporosphenoidal lobe, whereas if the aphasia be motor, the bases of the third and ascending frontal convolutions or the conducting paths from the cortex would be the seat of the implication." The same author claims that there has been no case of temporosphenoidal abscess under his care in which motor aphasia has been a feature, although he mentions a case in which the medical attendant had observed it.

When aphasia is present, it most frequently takes the form of word deafness.

The blood changes in brain abscess are not so characteristic as one might expect to find them. In uncomplicated abscess there is a moderate leukocytosis with a high polynuclear count. A more pronounced picture indicates complication, either thrombosis or meningitis.

Alteration in the cerebrospinal fluid is moderate in uncomplicated cases of temporosphenoidal abscess. It consists chiefly of a moderate increase in the pressure, a slight increase in the lymphocytes and in the coagulability of the fluid. Indeed, I have seen cases of uncomplicated brain abscess with normal fluid. After rupture of the abscess into the ventricle or on the surface of the brain we find the changes in the fluid characteristic of meningitis which have been so ably set forth by Kopetsky and more recently by Dwyers in a paper read at the last meeting of the Triological Society. Notwithstanding the sparsity of the spinal fluid findings in the brain abscess, it helps in a negative way in the differential diagnosis of intracranial complication of otitic origin.

An attempt has been made to enumerate the many symptoms and signs of temporosphenoidal abscess. Much more might have been said of each, and some of lesser frequency might have been included, but the time limit of this paper has already been exceeded; they will need to be enlarged upon at some future time should the occasion permit. For the same reason a consideration of the treatment and that equally important subject, after treatment, cannot be attempted at present.

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DISCUSSION

ON PAPERS OF DRS. KERRISON, BUTLER AND MACKENZIE

Dr. Nathan P. Stauffer, Philadelphia: In reading and listening to Dr. Butler's excellent and practical paper on infective sinus thrombosis I was impressed with the fact that we hold many opinions in common. In summing up his article I have made nine principal points and these I wish to discuss in order.

1. Dr. Butler's statement that all thrombi of the veins are not infective I have held for some time and I have sought to verify it by consulting various surgeons who have operated on various veins, especially varicose veins in which thrombi are rather frequent. The opinion that many of these thrombi are harmless is general, which is proved by the number of people who have varicose veins with thrombi who have no chills, fever, or sweats, as in varicose veins of the leg.

2. The lateral sinus is most frequently the involved sinus. There is no doubt that this is owing to its proximity to the ear, its being really the next step in the progress of the mastoiditis. I think many times the petrosal sinuses are involved and tying the jugular eliminates the trouble.

3. Acute mastoiditis provides more sinus infections than chronic mastoiditis. Dr. Welty (California) reports it as three to one in three hundred cases. In my mastoid cases last year I found it on an average of one in every ten cases.

4. Blood cultures certainly are excellent diagnostic aids and I agree with Dr. Butler that while a bac-

teremia is good evidence of an infective thrombosis I would not operate on that alone, but I would if he had it with chills and sweats. Blood cultures from the two patients' charts I hold in my hand contained streptococci from the external auditory canal, mastoids and each abscess, also from each artery and vein we tapped. Especially important was the increase of polynuclears and the variations in leukocytosis.

5. Optic neuritis is not regular until so late as to be of doubtful value. In latent sinus infection it is not constant enough to be counted on.

6. Headache is not constant as to location but I consider it good as corroborative evidence of intracranial involvement of a serious character. In most mastoid cases the patient has headache, especially when the necrosis has uncovered some vital area. In many this headache continues for several days to a week after operation. Aspiration of the sinus is not considered good surgery.

7. Roentgen-ray plates are excellent aids to outline the course of the sinus. Dr. S. McCuen Smith proved this to me some years ago. I recall one boy's life which was probably saved because the Roentgen-ray plates showed me an abnormally placed sinus, one which was pushed forward occupying the space where I usually chiseled into the antrum and mastoid cells. In fact he had no mastoid or mastoid cells; all he had was a misplaced lateral sinus occupying the mastoid area.

8. The infective thrombotic temperature is characteristic. In this patient's chart, every day just before the temperature would rise to 106 F., there would be a terrible chill. The patient became blue as your blue serge suit and it was a sight you would not have enjoyed. If you have ever seen a severe malaria chill and multiply it by ten you will have an idea what her infective sinus-thrombotic chill looked like. These sinus-thrombotic temperatures are certainly high but many remain low without chills for a while and then have a sudden septic rise even after the clot has been removed from the jugular vein. This girl had no chill after the clot was removed until the next metastatic abscess formed, then her chills returned but were irregular chills.

I have another patient who had these high temperature rises but no chills. The septic temperature without chills I believe is due to an infection of the blood stream without a thrombus formation. With a thrombus there is a complete obstruction of the blood stream allowing large and overwhelming productions of a new bacteria. Since writing the above I have read, in the Transactions of the 1915 Otological Society, of six cases of spontaneous cure of unrecognized sinus-thrombosis and in each of these there was no chill but the patient had headache or a rise in temperature, or dizziness. One of the patients had complete occlusion of this sinus yet had no chills; either there were no bacteria set free in the veins, or in such small quantities that they were easily taken care of by the leukocytes, or else the bacteria were not of a virulent strain.

Do not be misled by the chill and septic temperature as being due alone to a thrombus in the vein; metastatic abscesses will give them. I recall a mastoid operation I did in which the sinus was uncovered and three days later the patient had the typical chill and rise in temperature and I was on the verge of entering that lateral sinus but fortunately I had an internist go over the case. Dr. J. E. Talley found a small spot of consolidation in her right lung which later turned out to be pneumonia. You may say that she had a metastatic abscess in her lung. Yes, possibly, but I feel sure she had no thrombus in the lateral sinus I was considering opening, for in a few weeks she recovered without any operative measures and is alive today (five years later). I believe she would not have been, had I given her ether and opened her sinus when she was developing a pneumonia. Two of my septic cases were greatly benefited if not cured by antistreptococcic serum. Owing to Dr. H. D. Jump's confidence and skill with it I was converted to its value. Especially is it of value when given in big doses of 50 c.c. and often. If too often they will get a tremendous urticaria, the itching of which is intolerable. The stock serum was used in most cases and I would recommend changing the strain if one brand does not help your patient, for sometimes you have a variety of strains of the same bacteria.

9. Differential diagnosis: Typhoid, malaria and pneumonia and meningitis have to be eliminated sometimes, and another disease which has to be differentiated from a sinusitis is erysipelas. I recall a male patient in the Presbyterian Hospital who had had severe pain in his right ear for several nights and a redness and swelling over his whole mastoid area and who was sent in for immediate mastoid operation, but the ear drum and canal did not resemble an overloaded antrum and I went over him again carefully several times until I noticed the peculiar shiny appearance of the skin and waited until morning, when as I suspected, he developed a severe attack of erysipelas. The great resistance to infection of the walls of the lateral sinus is remarkable. I have a series of ten cases which I shall report, all the patients having mastoiditis with uncovered lateral sinuses and with but one infection of the sinus.

In regard to prognosis I am more hopeful than Dr. Butler, who thinks it is guardedly favorable, if early operation is done it is decidedly favorable. Although in saying this I know that Kopetsky reports a series of twenty-four cases in which only eight recovered, but in this possibly many were well-advanced cases before diagnosis was established. Metastasis is one of the complications which retards and saps the patient's vitality and makes the prognosis more grave as these abscesses occur when the patient needs every ounce of strength to recover instead of fighting new foci. These abscesses with their sequelae are most discouraging to the doctor, for just as you think your patient is out of danger he will develop an unexpected chill and you are puzzled to know if it is due to another septic vein in his head, or some abscess in a vital or remote center, and it may take several days to show definite localized symptoms.

There is one symptom which may help you to determine if he has an obstruction in his lateral sinus; this symptom was first shown me by Dr. Crowe of Baltimore while he was working with Dr. Bárány when we were in Vienna together. It is based on the fact that as the two jugulars return most of the blood from the brain, if you shut off one of the two return flows of this blood supply of the brain you will get an engorgement of all the veins of the face and forehead and they will stand out like whipcords. So if your right lateral sinus is suspected of holding a thrombus, place your finger tightly over the left jugular vein and if there is obstruction on the right sinus or jugular vein and your finger is correctly placed on the left jugular the patient's face will become blue from congestion and the veins on the forehead stand out prominently. This is a fairly constant sign.

Dr. G. R. S. Corson, Pottsville: I wish to speak briefly on two points. The first is what I would call ultra-conservatism. When you have an infected sinus-thrombosis, I consider it dangerous to wait three or four days, as suggested, for abscess to develop in other parts of the body. Infective sinus-thrombosis is apt to give rise to embolism, and I consider it poor surgery to wait for metastatic symptoms, or the risk of them, before resorting to operative measures.

I want to cite briefly a case that came to my attention, and ask you whether or not I did right. Ten days ago, I was called to go at once to the hospital, where I found a child 1½ years old, of foreign parentage, making it difficult to get a history. The history, so far as we could get it, was that the child had had a running ear for a year. This had stopped six weeks previously, but had started again seven days before I saw the patient. The child had not been sick until about five days before entering the hospital. Then the only symptoms were that the child's jaws were closed so that it could not open its mouth; and when it tried to cry it would throw itself back and stiffen. I had nothing else to go on. The temperature and pulse were normal. There was no swelling or tenderness over the mastoid, and no swelling of the canal. They had called me because they thought that it might be developing mastoid disease, which I said I could see no evidence of. There evidently was some cerebral involvement; but there was no discharge and no pain. The child did not cry. I referred the case back to my medical colleague, and suggested lumbar puncture. The child died seven hours later, and the postmortem showed meningitis of that side, around that region.

Did I do right in waiting, or should I have operated? The chief resident of the hospital feared that the case might be one of infantile paralysis; and I simply referred the case back to the medical man, with the request that I have a report from him and that we work together. Before we got together, the child died.

Dr. George B. Jobson, Jr., Franklin: The reading of these papers and the cases cited show how difficult it is to diagnose and localize brain abscess cases with any degree of certainty. The information vouchsafed by the essayists brings to mind a case quite out of the ordinary, which I reported at a meeting of the American Academy of Ophthalmology and Oto-Laryngology, in 1914.

The patient, a woman about 28 years of age, had a left chronic middle-ear suppuration which had existed since childhood. Left-sided mastoiditis followed an acute exacerbation of the middle-ear trouble. I operated, and found a slightly necrosed mastoid, with an extra-dural and perisinus abscess as complications. These were cared for surgically. The lateral sinus was opened, but was not thrombotic. For about five days the patient's condition was favorable, when suddenly the temperature rose rapidly and the pulse became greatly accelerated. Nausea and chill were complained of. A second operation disclosed an apparently normal lateral sinus, but a left thrombosed jugular vein. The latter was exsected, and the patient got along nicely and left the hospital three weeks later.

Nine days after reaching her home, the patient complained of right-sided headache, and nervousness. Two days later she was inattentive and showed slowness of thought. Temperature was 99 F., pulse 98. The nasal sinuses and right ear and right mastoid were normal. The left mastoid had nearly healed. The left eye was proptosed, lids edematous, pupil dilated and stationary. The ophthalmoscope showed a choked disk of the left eye. Right eye was normal. The head was trephined on the left side, above the meatus. The brain was probed to a considerable depth with a narrow-bladed knife, with the escape of a small quantity of cerebrospinal fluid only. No relief was afforded and two days before death, left hemiplegia developed. At this time a metastatic cerebral abscess on the right side was strongly suspected, but the patient was too far gone for an operation. The right middle ear and right mastoid were normal. On necropsy the left side of the brain and left cavernous sinus were found to be normal. A large right temporosphenoidal abscess was encountered. The left optic nerve and its tract showed inflammatory signs, which probably were caused by extension from the region of the brain abscess. This case was unique in that the left eye-signs simulated left cavernous sinus-thrombosis, and shows the difficulty in localization of a brain abscess when the ear and mastoid are normal on the affected side.

Dr. James A. Babbitt, Philadelphia: It would be difficult to sit still and not give a word of appreciation of these tremendously valuable contributions. I wish to speak of three points. Taking the three papers together, in the first place it seems to me that this symposium has emphasized the absolutely necessary correlation of the otological and the nystagmus symptoms with the other symptoms of true neurological kind, in the diagnosis of cerebral lesions. In the second, it emphasizes the necessity of the association of the internist with the otological man in substantiating the diagnosis. We are inclined to be either too conservative or too radical, I think, as regards some cases. For instance, I was associated with Dr. Randall in some cases in which, but for his conservatism, I should have operated. They cleared up suddenly, but were associated with marked general symptoms. It is important to eliminate questions of toxemia, various motor symptoms and tabetic connection before proceeding to localized operative work, whether of thrombotic kind or for cerebral or cerebellar abscess. The steps are not so clear and easy as they would appear to be from the wonderful analysis of these cases that has been given. We are dealing with some obscure conditions. Thirdly, I cannot help feeling that this is really the field of the otologist, intracranial surgery; and not that of the general surgeon or of the general surgeon assisted by the otologist. The otologist is the proper man to handle the cases, knowing the paths of communication through the mastoid region, and should be the one to interfere in intracranial surgery.

Dr. John F. Culp, Harrisburg: I also want to express appreciation of these most excellent papers. Dr. Mackenzie mentioned that the late symptoms of cerebral abscess often simulate those of morphin poisoning or the results of taking morphin in excess. Last winter I read before the Philadelphia Laryngological Society a paper in which I told of having made the mistake of confusing two cases of cerebral abscess with hysteria. That may seem strange to you; but this patient was a young girl whom I had seen in the hospital for acute otitis media. The ear-drum membrane had been incised, and I had found that she had a chronic discharge from the other ear and small polyps protruding from Shrapnell's membrane. She said that she had had a running ear ever since the age of 7 or 8 years, and she was about 20.

I lost sight of her for about six weeks, and was then called to a house in a poor part of Harrisburg, to see her. I found that she had been in bed for three weeks. She had been taken sick while at work, and had fainted, and was sent home. She complained of intense pain in the top of her head, and was extremely hysterical. The family physician was called in, and had given her morphin twice a day for two weeks, ¼ grain at first. She was getting ½ a grain twice daily when I was called in. The whole atmosphere of the case was one of intense excitement. She still complained of great pain in the top of the head, and of inability to sleep without this morphin. There was a love-affair, too, complicating things; and all the symptoms made me think that it was more one of hysteria than of a real pathological condition.

I had her sent to the hospital, where her eye-grounds were examined, her reflexes taken, her blood investigated, and everything done to discover the cause of the condition. There was a little leukocytosis, of fifteen thousand, found; but in other respects the blood-picture was normal. A Roentgen-ray plate showed chronic sclerosis of the right side; but the left side had an acute condition, and was discharging freely. The resident told me that as soon as the girl's mother and beau would leave the room, she became quiet and he could get along all right with her, but when they were there she was much excited. I, therefore, excluded them from her room for a few days. Thirty-six hours later, when I was thinking of doing a radical operation, the patient died in convulsions. I found, on postmortem examination, a very large abscess, which was as big as a small Messina orange, and communicated with the middle ear. Its walls were ⅛ inch thick, and it is hard to say just how long the abscess had been there. It looked as if it had been there for years; yet she had been working until two or three weeks before the end.

What I want to emphasize is that the symptoms that she presented when I saw her were those coming from the extensive use of morphin, and when the effects of the morphin wore away, she had intense restlessness, a condition which I considered to be distinct symptoms of hysteria.

Another point which I wish to speak of in connection with Dr. Butler's paper is that frequently there is an infected sinus, and yet no thrombosis unless one waits long enough. Last winter I had a patient, the daughter of a prominent citizen of Harrisburg, who had had measles, followed by middle-ear complication and mastoiditis. I had in consultation a specialist from Washington, and later Dr. MacCuen Smith of Philadelphia. She had a slight chill, and the temperature went up to 105 F. That night we operated. To all intents and purposes, the walls of the lateral sinus appeared normal. We opened the sinus, found no clot, but we cured our patient. If we had left it longer before opening we should probably have found a clot. A high temperature coming on suddenly in the course of normal convalescence from a simple mastoid operation very often means involvement of the lateral sinus.

Dr. Butler, closing: I believe Dr. Corson misunderstood me; probably because I did not make myself clear. Usually the symptoms are sufficiently typical to enable one to make a correct diagnosis, or are not so urgent that they preclude a few days' study of the case. After the diagnosis is made, I would not delay operation longer than necessary because we are dealing with a dangerous condition. A few years ago, I saw a man in the University Hospital, who had a high temperature, repeated chills and evidently a sinus-thrombosis. We urged immediate operation but he refused, saying that he felt pretty well. The next day he consented to the operation. We opened the sinus and he eventually recovered after a prolonged convalescence.

We had a man in the German Hospital who had had chills for eight days, with a running ear, but he did not look septic. We examined his blood and found the malarial parasite. He finally had to have not the sinus, but the mastoid, opened. We found that he had syphilis and we then gave him mixed treatment.

Dr. Mackenzie, closing: If I may be permitted, I should like to speak of Dr. Corson's case. He asked whether he was justified in going ahead and operating. In the paper I read, the fact was mentioned that there are anatomical reasons why a patient may have an intracranial complication in the absence of symptoms pointing to it.

Some of the worst complications that we meet are in patients who have an unruptured membrane and present no external signs of mastoiditis. The pus finds its way internally because of the excessive thickness of the structures overlying the mastoid. Any ear condition with symptoms suggesting an intracranial complication should be operated on at once.

Concerning Dr. Jobson's case, I believe he said that the patient had a running ear from the left side with an intact membrane on the right side, and symptoms suggesting intracranial complication on the right side; also, symptoms and signs referred to the right eye suggesting cavernous sinus-thrombosis. In such a case there is every incentive to examine the right ear very carefully, particularly with reference to the function of hearing; besides, a puncture of the membrane should be made and smear examined, as well as culture made in order to recover any organisms that might be present. At a meeting in Boston, where Dr. Jobson reported this case, I suggested that when there is an apparently normal ear, with no pain and no external evidences of mastoiditis or involvement of the mastoid, and with the membrane intact, the diagnosis is aided by the appearance of the membrane, for it will be found, in a case with middle-ear suppuration with intact membrane, that the membrane will appear dull, like frosted glass, that it lacks the normal brilliant reflex. Moreover, the handle of the hammer will appear narrow, because the handle, although in contact with the membrane throughout its entire length, is not in contact with the membrane throughout its entire width. The posterior part is separated slightly from the membrane, so that the presence of a fluid within the cavity will give the handle a narrow appearance.

Dr. Babbitt is correct in his idea regarding the complications of ear troubles and the importance of a cooperation between the otologist and the neurologist and internist. We hear a great deal about nystagmus and its value as a diagnostic aid and I wish to add that we may find nystagmus in many variable and widely separated conditions. For instance, we may have it in an irritative condition of the labyrinth, in which case it is a short excursion, rotary and to the affected side. We may have it in a destructive lesion (labyrinth suppuration sequestration of the labyrinth eighth nerve neuritis), in which case it is of short excursion, rotary and to the unaffected side. We may have it in abscess of the cerebellum, in which case it is horizontal and of a wide excursion to the side of the lesion or away from it. This latter observation was pointed out by Professor Alexander and myself ten years ago.

Dr. Sears and myself reported a case a year ago before this section where there was present in the same individual at different times labyrinthine and cerebellar nystagmus. I have had another case since in which I was afforded the same opportunity of studying these two types of nystagmus. In both these cases I was able to corroborate my earlier findings, published ten years ago, concerning the difference in the character of labyrinthine and cerebellar nystagmus.

A further observation worth mentioning is that in meningitis the nystagmus is very changeable. Within fifteen minutes it may change from one kind to another. Finally, nystagmus may be observed in lesions affecting the angular gyrus. A lesion in this area may produce a nystagmus or a conjugate deviation of the eyes, depending on the intensity of the pathologic condition present.

DR. JOBSON: My case had a normal reflex. There was a deep-seated abscess, but I was sure that there was no right ear involvement.

DR. MACKENZIE: I was speaking only in a general way. I did not mean to refer to your case in particular.

SOME TENDENCIES OF THE WORKMEN'S COMPENSATION LAW

G. W. WAGONER, M.D.
JOHNSTOWN

In a paper read at the annual session of the American Academy of Medicine, Detroit, Mich., June 9, 1916, Dr. Frederick L. Van Sickle quoted from the Michigan Industrial Accident Board some of the reasons why a workmen's compensation law should be supported. I shall examine these reasons from the standpoint of the commonplace man who is more impressed by facts than by idealism.

1. "The law should be supported to the end that the injured workmen may receive justice."

When the workman accepts the law he relieves the employer from responsibility for damages from any cause. He surrenders an inherent right.

He must accept medical and hospital service without question and when offered.

The immediate care may be furnished by first-aid workers or nurses who are not responsible to any one in the sense that a legally qualified physician is responsible. There may be an interval during which the workman has no defense against the mistakes of irresponsible attendants. It is quite possible that an injury may seem so trivial or so obscure that the trained nurse or ordinary first-aid helper might be deceived and give directions that would prevent the injured one from being examined by a physician for such a length of time that disastrous conditions would develop. No self-respecting physician would accept responsibility for such a condition, but would treat the case with a distinct disavowal of responsibility for results. Who then would be responsible to the injured one? Not the employer, for he has been definitely relieved by the law. Not the trained nurse, for she does not claim to have expert scientific knowledge, nor does the law allow her to be judged by such a standard. In the last analysis it is the injured one who must suffer without the chance of lawful recourse.

This is not a fanciful situation. Errors of judgment concerning slight injuries have been frequently made, and sometimes with fatal results. Every physician of wide experience could detail such cases. There should be no actual flaw in the law which is designed to protect the workingman. While suffering from an injury a workingman should never pass from under the protection of a responsible person. Therefore, a qualified physician should be in immediate charge of all injured workmen, no matter what provisions concerning first aid, trained nurses, and emergency operating rooms have been made.

Here is an opportunity for the workman to step out from under the protection of "Justice."

The workman in a large proportion of cases is getting more service than the law pays for. He therefore becomes an object of charity while he believes the law intends him to be a self-supporting citizen. An injustice is done him by debasing him into the class of dependents when he fancies he is only receiving that which he has fairly earned.

Justice is almost obscured by the charity he must accept.

2. "That employers may have fixed liabilities and escape the embarrassment and expense of damage suits."

The law accomplishes this object in every respect. At first the employers were somewhat doubtful whether its benefits were worth what they cost them. But employers are no longer doubtful. After adjusting their business to the requirements of the law they realized that all their harassing and uncertain responsibilities to their workmen had slipped from their shoulders. The law has proven a blessed relief. The cost is accepted as an overhead charge and is distributed to, and absorbed in, the cost of their products and there it ends. The employer is no longer concerned if one or a dozen of his men are injured. Every possible avenue by which any accident may cost him an indefinite sum has been closed. He knows where he stands in relation to his men and he knows he is safeguarded. Neither does it concern him how long a workman may be disabled, for his yearly liability is fixed in the premiums he pays, and the injured workman is formally turned over to other interests. If the workman is off his job too long another man takes his place and the law interposes no objection. However unsympathetic this statement may seem to be, yet it is a fair outline of the employers' point of view as detailed to me by several hard-headed, unsentimental ones. The only objection the employers will finally make is that the premiums are higher than required to pay the benefits conferred upon the workmen. They will insist upon a substantial reduction.

3. "That the courts may be relieved of the time of trying damage suits, and that the public treasury may be relieved of the expense of these damage suits."

The law will undoubtedly accomplish these objects, for it has taken from the workman the right to protest the injury to his body by a suit for damages. In passing, it may be noted that the law seems to cut away the ground upon which every method of defense in damage suits had been erected by the ingenuity of lawyers and courts, and left the employer helpless. If the employer had no haven of refuge left one might question the justice of the revolutionary act. But lo! The payment of a sum of money each year releases the employer from his bondage and makes him free and indifferent.

4. "That the public may be relieved of the expense of caring for the victims of industrial accidents."

It has been taken for granted that the compensation fund will do this, but the operations for six months indicates that it does not in a large proportion of cases. The trivial cases of injury which do not cause a disability lasting two weeks are paid for in full by the fund. But in this class of cases a new practice has developed. No matter how slight or insignificant the injury, the employer insists the workman must report and be formally treated either by his first aid nurses or a selected physician. He will not allow the workman to assume any responsibility over his own body. The scratch is dressed and the workman ordered to stop work. During three or four days the treatment is continued. The workman loses his wages, the doctor gets his fee, if he treated him at his office, and the workman is relieved from the payment of a medical bill and is safeguarded for compensation if by chance an unexpected disability would develop from his scratch. Everyone is paying too much for his whistle. It is in this class of cases the doctor is likely to get his full fee.

But when there is a serious injury, one requiring the highest professional skill and the most careful hospital attention over an indefinite period the case is quite different. Then the injured man becomes an object of charity. A page from the record of a hospital's actual experience will tell the story better than assertions.

I submit a summary of seventy-nine compensation cases treated; their cost to the hospital and the amount received from various insurance companies and other sources under the compensation law. It will repay study, for every item can be verified. Computed to Oct. 23, 1916.

Compensation cases admitted		79
Paid in full by compensation	9	
Paid in full by compensation and employer	2	
Paid in full by employer	4	
Paid in full by patient	3	
Paid in part by compensation	26	
To be collected	35	
	—	79
Total number of hospital days for cases		2,297
Total cost of maintenance at ward rate of $10 per week, including x-ray, operating room, anesthesia and laboratory charges		$4,226.50
Total cost of maintenance at per capita cost of $1.71 per day, including above charges		4,733.83
Under provisions of Compensation Law amount that should be received		2,750.00
Actually received from compensation to date	$ 808.26	
Received from employers for patients	101.25	
Received from patients	394.61	
Due from compensation—will probably be collected in full	527.09	
Guaranteed by employers	290.75	
Total received and to be received on account of compensation cases	$2,121.96	
Net cost to hospital of compensation cases at ward rate of $10 per week		2,104.54
Actual net cost to hospital of compensation cases at per capita cost of $1.71 per day		2,611.87

This summary shows that the hospital alone rendered services costing $4,733.83, and received from all sources for their compensation cases $2,121.96. Over $2,600.00 was required to make up the deficit, and this was drawn from the charity fund. This fact classes these workmen as charity cases for the tax payers and general public supply the charity fund.

5. "That more harmonious relations be promoted between employers and employees."

This object is not likely to be accomplished, because the law puts each in a class, defines the duties of each and relieves each of responsibility to the other so long as they conform to the law. A barrier is placed between them which it will not be profitable to break; therefore it will not be disturbed, but rather made more secure. The employer can require the maximum efficiency from his employee because he knows how much it will cost if the employee meets with accident while speeding up, and this cost has already been paid. When the workman's efficiency falls below the standard fixed, whether on account of accident or long service he is promptly thrown into the discard. Employers have inaugurated a system of physical examinations, not only to determine the fitness of a man for a job, but also for his continuance in the job he may have. Men below standard are gradually but certainly eliminated. This practice has been scientifically developed since the compensation law became effective. There is no sentimental harmony between employers and employees. Whatever harmony there may be is of the legal brand.

The Pennsylvania "Report of First Four Months of State Insurance Fund" states that the income on account of premiums, etc., was $688,852. Among the items of disbursement is one of $7,968.84 designated medical.

The report also states that 1,279 medical claims were paid at an average cost of $6.23 each. There is no item covering payments to hospitals and for nursing. So it is fair to assume that the $7,968.84 is the total amount paid out to physicians and hospitals during the four months covered by the report. How trivial this amount is compared to the actual cost of caring for these injured is indicated in the foregoing table. The summary does not tabulate the value of the physicians' services. Upon a basis of minimum fees prevalent in the locality, and also for the social condition of the individuals injured and treated, the hospital and professional cost of these seventy-nine cases would be $10,000 in round numbers. $2,121.96 was received, one fifth of the actual cost.

It is therefore demonstrated that hospitals and physicians are doing an enormous amount of work for compensation cases for which they are not paid; that a large proportion of injured workmen are objects of charity notwithstanding the compensation law; that insofar as the workmen and the public believe that the compensation law pays a just return for services rendered, they are deceived.

Can any good reason be given why physicians should be compelled to render free service in so large a percentage of cases that are supposed to be paid for out of a fund which the law collects for the purpose of providing proper care and protection to injured workmen? One may reply that no one is compelled to labor without receiving just pay, but public opinion and policy compels a physician to serve an injured person without stopping to find out who will pay the bill. The physician is at a disadvantage and is imposed upon without mercy. Even the state does not hesitate to accept services from him without manifesting any intention to pay. Physicians will continue to render this service, but it is an injustice which no other body of workers would submit to.

There is an item in the report which reads "Surplus to policy holders $69,844.89." This evidently means that after all claims upon the fund were provided for, that the above sum could be, or perhaps, will be, returned to the policy holders, who are the employers. If the legitimate cost of hospital and medical service was paid for by the fund the reported surplus of almost $70,000 would be properly distributed to those who have earned it. But not so. Hospitals and physicians are exploited for the benefit of employers, employees, and to show how solvent the state insurance fund can be made.

It must be remembered that the figures quoted from the report concerns the state insurance fund alone. Perhaps nine tenths of the risks in the state are carried by other companies from whom it would be impossible to secure any information concerning their operations. It is quite certain, however, that they squeeze the hospitals and physicians to the limit allowed by the law.

What is the remedy?

The basic fact must be incorporated in the law that honest, reasonable, legitimate services must be paid for whether rendered by hospitals or physicians separately or conjointly, and for the actual time required to render the injured workman safe.

It would not be very difficult to evolve a plan by which each party to the transaction might be assured his rights and be protected in their enjoyment. A study of the report of the state insurance fund shows that the premiums now exacted are sufficient to meet all requirements and to pay for all services rendered. There would be no surplus to policy holders, but bills for reasonable, honest hospital and medical services would be paid without scaling the most important of them 90 per cent., and self-supporting workmen would no longer be objects of charity during the days of their misfortune.

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WILL YOU HELP US KEEP IN TOUCH WITH THE LEGISLATURE?

The next few months will be strenuous times in the office of the secretary-editor and with the Committee on Public Policy and Legislation, and each officer and member of each county society is urged to assist in every way possible. County secretaries are asked to be prompt in answering all communications from the state society and in collecting and forwarding the annual *per capita* assessment. The secretary-editor has to keep track of both the society work and THE JOURNAL, though the other officers are very ready to do their part in the work. In our neighboring state on the west they have a secretary and managing editor, a full-time executive secretary and news editor, an assistant news editor, and an advertising manager, four separate individuals, and the *Ohio State Medical Journal* shows that they are all right on their job. The December issue contains a full page double column editorial which starts out as follows:

> **"Please Help Us 'Clear Our Decks' for Next Month's Legislative Work**
>
> "The state headquarters of the Ohio State Medical Association is forced to issue this urgent plea for help: Will every member of every component county society pay his 1917 membership dues early in December—immediately upon receipt of this issue of *The Journal?*
>
> "By doing so you will not only materially lessen the burdens of an overworked state headquarter's staff, but you will greatly increase the efficiency of the State Association. We will need an organization of maximum efficiency this Winter, to cope with special legislative problems—problems of fundamental importance which will develop immediately after the new Ohio General Assembly convenes in Columbus on January 8.
>
> "Under the Association's new constitution, dues for 1917 must be paid by the member and received at the Columbus office of the State Association on or before January 1, 1917. Failure on the part of any member to see that this is done will cost him the protection of the Association's malpractice defense fund, and will cause him to be dropped forthwith by *The Journal.*
>
> "We anticipate that all dues will be paid before January 1. This is a *special* plea: That they be paid *immediately,* so that our state office force will not be swamped with work at the commencement of the new year. We *must* have these details entirely disposed of by January 8, so that our entire attention may be devoted to legislative problems. The handling of membership records, coupled with the correction of our *Journal* subscription lists, is an intricate matter. Our Association is growing so rapidly that it requires a special staff of stenographers to attend to this year-end rush. Because of the approaching session of the Legislature, we have engaged a staff to be ready the day this *Journal* goes into the mails. We anticipate that our members are anxious to help us in this regard, and that the rush of work, in response to this appeal, will start during the second instead of the last week in December. This will make it possible to have 'our decks cleared for action' the day the Legislature convenes.
>
> "Doctor, do this: Sit down right now and make out a check for your county society dues. Don't send it to this office. Send it *to the Secretary-Treasurer of your county society.* Don't wait for him to 'dun' you. By sending him your check, two weeks earlier than you otherwise would, you will be doing the State Association a real service."

Now, Mr. Pennsylvania Doctor, don't think your state society is cranky or arbitrary in saying that your dues must be paid on or before March 28, for here is Ohio that insists that their dues must be paid on or before the very first day of the year.

Perhaps you think that Ohio, like Pennsylvania is overstrict in the collection of dues. If so, read this first editorial in the last month's issue of *The Journal of the Medical Society of the State of New Jersey:*

> "Please do not make it necessary for the officers of the State Society to harp about the collection of dues throughout next year. Pay yours now. Send the Treasurer of your county society a check covering the amount today so that he may remit to the Treasurer of the State Society on or before January first—the day on which it is due. It is easier to attend to this matter now than later, and it will save all of us much bother."

Here is another editorial from the last month's issue of *The Journal of the Iowa State Medical Society:*

> "The time is rapidly drawing nigh when the members of the Iowa State Medical Society will be approached in some manner by the secretaries of the various county medical societies with the request for the payment of 1917 dues. In this connection it may be well to state that the fiscal year of the State Society begins January 1, 1917. Dues for the coming year, however, are payable in advance and should be in the hands of the state secretary on or before January 1st. Any member who has not paid his dues is in suspension and during that period is deprived of all rights and benefits with which he was formerly endowed as a member of one of the best medical organizations in this country."

Oh, but you say that our *per capita* assessment is too large. Well, how does it compare with the other state societies? There is not a state medical society bordering on Pennsylvania that collects as little from its members as does Pennsylvania, and not one of them has a medical relief fund, while Pennsylvania has during the past nine years laid aside a medical relief fund amounting to almost ten thousand dollars over and above the sums quietly distributed to needy members. New York, with her 8,503 members, collects $3.00 from each, but it is only fair to mention that she publishes a directory. Ohio and New Jersey collect $3.00 from each of their members. West Virginia collects $2.00 from each member and another dollar from all who wish to be protected by their Medical Defense Fund. Michigan at her last annual meeting increased her assessment from $3.00 to $3.50, so as to meet the extra cost of her journal, and Indiana at her last annual meeting raised her assessment from $3.00 to $4.00. Iowa asks her members for $5.00, California takes $6.00 from her members, and— But why mention more? Really, doctor, where do you get more for $2.75 than our state society gives you? Granted, for sake of argument, that you do not need the insurance provided by our Medical Defense Fund, and our Medical Relief Fund, can you not afford $2.75 for The Journal, for the privilege of attending the state society annual sessions and for your share of the expense of having the profession of Pennsylvania represented in legislative and other matters?

Probably when this is read by our members one out of six of them will have paid his 1917 dues to his county society. Will not the other five sixths promptly pay the annual dues so that the local secretary and the state secretary will be relieved of the extra work of collecting dues? It may not be pleasant to be "dunned" for the dues, but believe us, it is no more pleasant for us to do the dunning. Surely you will help us out promptly this year and allow us to give all the time possible to watching medical matters at Harrisburg, and to securing editorials that will be more to your liking than this one.

DR. WENDELL REBER

It is with great grief that we announce to the members of the society the death, on Saturday, Dec. 30, 1916, at Philadelphia, of Dr. Wendell Reber.

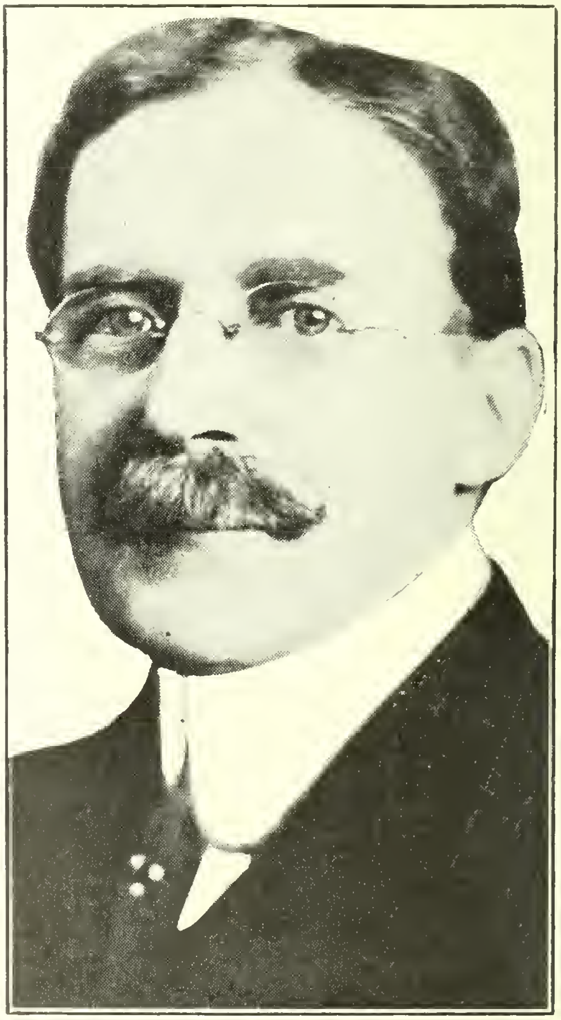
The profession in general, and the specialty of ophthalmology in particular, have suffered a loss as great as unexpected, and Dr. Reber's disappearance from amongst us will leave a gap hard to fill, known as he was, not only in Pennsylvania and the United States in general, but abroad as well, as one of the best ophthalmologists for his age that America has produced.

Following his attendance at Memphis, Tennessee, of the meeting of the American Academy of Ophthalmology and Otolaryngology (of which he was a former president), Dr. Reber developed pneumonia, and, while, due to a mixed infection, there was no crisis, yet his case seemed to be progressing favorably, when at 1 o'clock on Saturday, acute edema of the lungs developed and he succumbed.

Born in St. Louis in 1867, Dr. Reber graduated in medicine from the Washington Medical School, and later in 1893 from the Jefferson Medical College in Philadelphia. He was professor of ophthalmology in Temple University, visiting ophthalmologist to the Samaritan, Philadelphia General, Polyclinic and Garretson hospitals, and professor of ophthalmology in the Philadelphia Polyclinic Post-Graduate School, and consultant to several other institutions.

He was recently chosen as member of the Council of the Ophthalmological Congress at Oxford, being the only American thus honored. He had received many honors in the United States, among them being the presidency of the American Academy of Ophthalmology and Otolaryngology and the Philadelphia Clinical Association, and memberships in the Philadelphia County Medical Society, the Medical Society of the State of Pennsylvania, the American Medical Association, the American College of Surgeons, and the Philadelphia Medical Club. He was also a member of the Union League, the Manufacturers Club, and of Olivet Lodge, F. and A. M., in Philadelphia.

Dr. Reber's writings are too well known to need detailing here, but his work in the eye muscles particularly did much to make his reputation great, and as corresponding editor for one of the leading ophthalmic reviews of London his opinions on eye matters were given great weight abroad. With a great circle of friends, Dr. Reber was known as a wit, and his keen sense of humor and his kindly humanity placed him in close touch with a great body of his fellow citizens upon many other points of contact besides that of science. Kindly, gentle and courteous, and yet firm in defending his technical opinions, he made an ideal teacher, and the great body of his students will remember long his practical and yet interesting way of imparting knowledge upon subjects with which he was connected and of which he was master.



WENDELL REBER, M.D., 1867–1916

Courtesy Philadelphia Public Ledger

CAT.

As chairman of the Commission on the Conservation of Vision of the society, Dr. Reber carried to a successful conclusion a campaign against improper medical legislation at Harrisburg, and it is largely through his keen foresight that the profession has seen its way to protect the public of the commonwealth against eyesight evils.

Dr. Reber leaves a widow, who was Miss Jessie Dalrymple of Philadelphia, and there were no children.

Truly a shining mark has been found by the arrows of the Almighty. C. P. F.

THE EYE-GROUNDS IN INTRACRANIAL LESIONS

In one of his essays which delights the reader because of the subject matter as well as by its fine literary style, Sir William Gowers thanks good fortune for three things: That he had early learned botany and roamed the country in pursuit of specimens; that he had early learned the use of the ophthalmoscope; and that he had practiced ophthalmology before neurology. When he entered upon his career the examination of the eye-grounds was infrequent. While now much more commonly made than formerly, it is even now too often neglected.

The excellent symposium on intracranial lesions of otitic origin in this issue may serve as a text to bring the subject to mind once more. No examination of a patient for suspected intracranial lesions can be considered complete unless it includes careful examination of the eye-grounds. The younger generation of physicians is now being taught the use of the ophthalmoscope and many are well qualified to say whether or not alteration in the eye-grounds exists. But in doubtful cases or those in which the matter is of supreme importance, the services of an expert oculist should be called into requisition.

In a differential diagnosis between intracranial lesions of otitic origin and brain tumor the presence or history of running at the ear would argue for a lesion of otitic origin. Optic neuritis is more frequent in brain tumor than in brain abscess; so in such cases the law of probability should be given weight.

The cause of optic neuritis has been much discussed. Three opinions have been held: (1) that it was due to intracranial pressure, (2) that it was due to toxic neuritis, and (3) that it was due to a combination of these factors. The weight of opinion at this day strongly favors the view that it is of mechanical origin and the condition itself calls for treatment; and very commonly demands a decompressive operation. Over and over again it has been shown that it has very promptly subsided after such an operation. So in cases of brain tumor where the localization is uncertain too much time should not be lost in waiting to make the exact focal diagnosis; but a decompressive operation should be done promptly. The best place seems to be over the temporal region, when it is believed the pressure is in the middle fossa; or over both sides of the cerebellum when it is believed to be below the tentorium in the posterior fossa of the skull. There are other means of relieving intracranial pressure, lumbar puncture and puncture of the corpus callosum; but both plans are attended with danger, and the second is not so effective as a decompressive operation with incision of the dura mater. T. D.

THE LEGAL STATUS OF THE AMERICAN MEDICAL ASSOCIATION SUSTAINED

The question whether it is legal for the American Medical Association to elect its officers and transact other business outside of the state of Illinois, the state in which it is incorporated, seems to have been settled by a decision rendered by Judge Heard in the Circuit Court of Cook County, Dec. 16, 1916, though appeal was taken. Judge Heard, in deciding that corporations not for profit may elect trustees or directors outside of the state of Illinois, said:

> There is not a day passes scarcely but what some national society meets here in the city of Chicago. Their usefulness depends on their meeting in different places throughout the United States. The American Bar Association meets in different places. The general bodies of all the different religious societies meet in different places throughout the country. There is scarcely any branch of trade but what has its national association meeting in different parts of the country.
>
> Now, of course, it is contended that their habitat cannot be changed. Of course it cannot, but this is not a question of habitat. The habitat always remains the same, the domicile remains the same, but its place of exercise of its power may be somewhere outside of the state of Illinois.

The Journal of the American Medical Association, for December 23, explains the litigation as follows:

> Many of our readers will recall that, at the time of the St. Louis session of the Association in 1910, it was rumored that an injunction would be served on the members of the House of Delegates to prevent the election of officers, on the ground that such election was illegal when held outside of the state of Illinois. No injunction was served, and the election proceeded as usual. During the later months of the year, efforts were made to induce the state's attorney for Cook County to start a "quo warranto" suit against the Association, on the ground that the law was being violated by the holding of the annual meetings and the election of officers outside of Illinois. This the state's attorney refused to do, holding that the Illinois law did not require corporations not for profit to hold their annual meetings and elections in the state and that there was, therefore,

no justification for such a suit. The attorney general of the state was then asked to take up the matter, but he also refused to authorize a suit. Jan. 5, 1911, a petition was filed in the circuit court of Cook County against the state's attorney, asking that he be compelled to bring suit against the trustees of the Association. From this time until Dec. 20, 1915, nearly five years, the issue was between the parties asking for the injunction and the state's attorney of Cook County, the point at issue being whether the state's attorney could be compelled to initiate such a suit against his judgment.

Various statements regarding the progress of the case have appeared in *The Journal* from time to time. The matter went to the appellate court twice and finally to the supreme court of Illinois, which, Dec. 20, 1915, just a year ago, refused to hear arguments on the merits of the case and ordered the circuit court to take up the original question, namely, whether or not corporations not for profit incorporated in Illinois were compelled under the law to hold their meetings in the state. Here for the first time the American Medical Association, technically, came into the case. The matter was argued last week before Judge Heard, who, on Saturday, December 16, rendered a decision which appears elsewhere in this issue of *The Journal.* The legal situation is that the attorneys for the Association filed a demurrer (that is, argued that even if all the statements made by the plaintiff were true, there would still remain no ground for action), in which they claimed that, under the Illinois law, corporations not for profit, such as the American Medical Association, were not required to elect officers or hold their annual meetings in the state, but could meet wherever they saw fit. This position Judge Heard sustained, implying in his ruling that it is in the interest of public policy that organizations, such as the American Medical Association, the American Bar Association and other similar national bodies, should be allowed the largest liberty in carrying on their activities. Such restrictions as are necessarily applied to commercial corporations organized for profit could work no good, but rather harm, if they were applied to such associations.

Let it again be emphasized that the questions at issue in this suit have no specific application to the American Medical Association; that is, they apply to all other organizations similarly incorporated under the laws of Illinois. The point at issue is the purely legal question whether or not the Illinois laws require corporations not for financial profit to hold their annual meetings and elect officers within the state. No injury could possibly result to any individual through the Association holding its meetings and electing its officers in other states than Illinois; it is conceivable, however, that injury might result to the best interests of the Association itself were it compelled to hold all its meetings in one state.

DID YOU GET YOUR DECEMBER JOURNAL?

Probably a thousand copies of the December issue of The Journal have gone astray, most of them belonging to Philadelphia. It is hoped that each member will have received his December copy before reading this explanation and apology.

CONFERENCE OF INDUSTRIAL PHYSICIANS AT HARRISBURG

John Price Jackson, commissioner of the Department of Labor and Industry, extends a most cordial invitation to every member of the Medical Society of the State of Pennsylvania to attend the Conference of Physicians to be held at the State Capital, Harrisburg, under the auspices of the Division of Industrial Hygiene and Engineering, Friday, February 16, beginning at 9:30 a. m. The program will be as follows:

Morning Session

Chairman—Dr. Francis D. Patterson, chief, Division of Industrial Hygiene and Engineering.

"The Relation of the Physician to the Compensation Law and Its Proposed Amendments," Dr. William Estes, South Bethlehem.

Discussion opened by Dr. Charles A. E. Codman, President of the Medical Society of the State of Pennsylvania.

"Compensation for Industrial Diseases," by Dr. Frederick L. Hoffman, statistician, Prudential Life Insurance Company, Newark, N. J.

Discussion opened by Dr. Alfred Stengel, professor of medicine, University of Pennsylvania.

"The Dawn of a New Surgical Era—the Carrel-Dakin Treatment of Infected Wounds," by Dr. William O'Neill Sherman, chief surgeon, Carnegie Steel Company, Pittsburgh.

Illustrated by lantern slides and motion pictures.

Afternoon Session—2 P. M.

"Treatment of Fractures of the Long Bones from the Viewpoint of Function," by Dr. Edward Martin, professor of surgery, University of Pennsylvania.

Illustrated by lantern slides.

Discussion opened by Dr. John B. Lowman, chief surgeon, Cambria Steel Company.

"National Standards for First Aid," by Dr. Joseph C. Bloodgood, Baltimore.

Discussion opened by Maj. Robert C. Patterson, American Red Cross.

Motion Pictures

"The House That Jack Built." Courtesy of Marcus A. Dow, Esq., general safety agent, New York Central Lines.

"The Curse of the Forest." Courtesy of Hon. Robert S. Conklin, Commissioner of Forestry, Commonwealth of Pennsylvania.

MEMBERS OF PENNSYLVANIA LEGISLATURE FOR 1917

A list of the senators and representatives of the Pennsylvania legislature will be found on the advertising pages at the end of this issue. It will be well to preserve this list for reference. Next month there will be found in the same part of The Journal a list of the principal committees of our legislature.

SUITS FOR ALLEGED MALPRACTICE

During the month of December four members sued for alleged malpractice were given a clean court record, one by jury trial, two by compulsory non-suits after the evidence of the prosecution had been presented, and one by *nolle prosequi.* Two members were sued during the month, one in Allegheny County and one in Huntingdon County, and, as it happens, the physician in each case is charged with neglect in the treatment of fracture of both tibia and fibula.

It is on account of the latter case that this editorial is written. In October, 1915, a member of the Huntingdon County Medical Society took charge of a boy, both bones of whose leg were broken in the lower third while in another state some days before. In January, 1916, the physician died. On Aug. 11, 1916, his widow as executrix was sued, but not until December 11 did she accidentally learn that members of a county society are entitled to defense when sued for alleged malpractice. Ordinarily, this might not be wondered at, but inasmuch as the state society had already looked after the defense of three separate suits against members of the Huntingdon County Medical Society, one of them being in court two separate times before it was permanently won, and, inasmuch as one of the censors of that society lives in the same place as did the deceased member, it would appear that the fraternal side of our organization is not sufficiently emphasized in that county. One of the rules governing the defense of members sued for alleged malpractice is as follows: "The society will not undertake the defense of any member unless his application is made within thirty days after service of summons."

The trustees, after considerable consideration and hesitation, have decided to take charge of the defense of the estate of this member so that no injustice may be done the widow as an innocent party, but this notice has been authorized as a warning to officers and members of county societies that the regulations governing the Medical Defense Fund will be strictly adhered to in the future. These regulations are printed on the application blank used by members in applying for assistance. The secretary of each county society is supposed to have a copy on file for use when needed, and has been asked to send for another copy as soon as one is used. Will it not be well for these regulations to be read at the next meeting of each county society? Cooperation on the part of our individual members is essential if our organization is to be of the most benefit to our members. The county society that is not a fraternal organization is of little use. Probably all our societies have indifferent members, possibly selfish members, but the rank and file certainly are not selfish and should not be indifferent.

THE PHYSICIAN'S WIFE

The previous article leads to the question, What part should the wife of a physician take in her husband's practice and in his county medical society? There are physicians and physicians, and wives and wives. Many a man, physician or not, owes no small part of his success to his wife. It is certainly not wise for physicians to talk much with their wives no matter how true and tactful they may be, about their patients. Cathell, in "The Physician Himself," writes: "Do not let your wife or any one else know your professional secrets, or the private details of your cases, or too much about the methods or instruments used in their treatment, even though they be not secrets. . . . The suspicious public labors under the impression that physicians who allow their wives to ride around with them while making professional visits relate to them whatever has transpired during the visit after they drive away. Such, of course, is not the case; nevertheless, if people think so, the discomforting thought is the same whether it be true or not. There is no end to mortifications, compromises and estrangements into which a physician's prying and babbling wife may lead him by her tittle-tattle, about 'The Doctor's Patients,' and there is nothing more mortifying or vexatious to the feelings of sensitive people than to hear that the details of their cases are being whispered about, as coming from Dr. Squeely, his trumpet-tongued wife, or others whom he or she has told."

The following is an excerpt of an article appearing in these columns some time ago: "Many a physician's wife can help and encourage her husband in his work. She should not be too much in evidence with his patients nor appear to know much about their troubles, but she can aid her husband in studying up some doubtful case, thus helping both doctor and patient, and at the same time increasing her husband's regard for her. I have in mind a young general practitioner whose wife quietly shared with him much of his professional anxiety and study, and was the means of enabling him to remove from a country village to a large city, in which he now enjoys a lucrative practice. She was modest and true to both her husband and his patients, and few knew that she took any special interest in those under his professional care."

All parties interested will be benefited if our families are taken into our confidence in business matters, encouraged to take an interest in the county and state society, and to read our medical journals, and to attend the outing meetings of our county societies and the annual sessions of the state society. Every member's family should know something about our Medical Benevolence Fund and our Medical Defense Fund.

HONOR ROLL FOR 1917

Seven societies, Greene, Juniata, Wyoming, Union, Elk, Armstrong and Huntingdon, are at the time of writing in the lead in the proportionate payment of *per capita* assessment for the year 1917. The following figures indicate the percentage of members paid:

Greene County	95 per cent.
Juniata County	82 per cent.
Wyoming County	75 per cent.
Union County	56 per cent.
Elk County	52 per cent.
Huntingdon County	51 per cent.
Armstrong County	50 per cent.

The Honor Roll for next month will comprise those societies that have paid for at least 75 per cent. of their 1916 membership.

CHANGES IN MEMBERSHIP OF COUNTY SOCIETIES

The following changes have been reported since the December Journal was printed, up to January 4:

Allegheny County: *New Member.*—J. Chris. Lange, Pittsburgh. *Death.*—Robert A. Brundage (Jefferson Med. Coll., '06) in Pittsburgh, November 30, from the effects of injuries sustained when he was struck by an automobile, aged 35. *Removal.*—J. Franklin Gorrell from Everett (Bedford County) to 1410 South Baltimore Ave., Tulsa, Okla.

Bedford County: *Removal.*—Benjamin F. Hunt from Clearville to Mechanicsburg (Cumberland County).

Berks County: *New Members.*—Paul N. Bowman, David M. Vogt, San Antonio, Texas; Daniel W. Nead (by transfer from Philadelphia County Society), Gilbert I. Winston, Reading. *Removal.*—Morris B. Oberholtzer from Souderton (Montgomery County) to Boyertown.

Cambria County: *New Members.*—John Walter Brancroft, Bennett A. Braude, Johnstown. *Removal.*—Calvin C. Rush from Portage to 147 East Mt. Pleasant Ave., Germantown, Philadelphia.

Carbon County: *New Member.*—J. J. Bellas, Lansford.

Clarion County: *New Member.*—William M. Clover, Knox.

Clearfield County: *New Members.*—James E. Ginter, Earl E. Houck (by transfer from Jefferson County Society), James I. Pollum, DuBois.

Columbia County: *New Members.*—Jacob R. Brobst, James R. Montgomery, Jr., Bloomsburg.

Crawford County: *New Member.*—V. Burton Eiler, Titusville. *Removal.*—Samuel J. Dickey from Blooming Valley to Conneautville.

Erie County: *New Members.*—Edward Dennis, Erie; V. W. Graham, Corry.

Fayette County: *Removal.*—Lewis H. Seaton from Grays Landing (Greene County) to Chambersburg (Franklin County).

Franklin County: *Death.*—William Francis Skinner (Jefferson Med. Coll., '90) in Chambersburg, December 18, aged 49. *Resigned.*—William M. Gay (gone to Windsor, Vt.)

Greene County: *New Member.*—Smith A. Hoge, Rices Landing.

Huntingdon County: *Resigned.*—Alvin R. McCarthy. *New Members.*—Earl Spencer Duncan, Fred R. Hutchison, Alvin B. Waite, Huntingdon.

Jefferson County: *Transfer.*—Earl E. Houck to Clearfield County Society.

Lawrence County: *New Member.*—M. N. McGriffin, New Bedford.

Lehigh County: *New Members.*—Warren H. Butz, Martin S. Kleckner, John B. Price, Allentown.

Luzerne County: *New Members.*—John R. Burns, Luzerne; Alexander B. Hepler, Wilkes-Barre.

Mercer County: *Removal.*—Guy H. McKinstry from Atlasburg (Washington County) to 8 Center Ave., Aspinwall (Allegheny County).

Monroe County: Frances Hurd Brown, North Water Gap, has removed to Castile, Wyoming County, N. Y., and taken a transfer card from the Monroe County Society.

Montgomery County: *New Member.*—Charles J. Swalm, Conshohocken (by transfer from Philadelphia County Society).

Montour County: *New Members.*—George A. Stock, White Haven (Luzerne County); John E. Struthers, Danville.

Northumberland County: *New Member.*—William Raymond Buckley, Mt. Carmel.

Philadelphia County: *Transfers.*—Daniel W. Nead to Berks County Society; Charles J. Swalm to Montgomery County Society. *Resigned.*—Wilson Buckby. *Death.*—Wendell Reber (Beaumont Hosp. Med. Coll., St. Louis, '89) in Philadelphia, December 30, from acute edema of the lungs, aged 50. *Removal.*—D. Randall MacCarroll from New York City to 1906 Chestnut St., Philadelphia.

Schuylkill County: *Removal.*—John D. Riley from Mahanoy City to 6225 Carpenter St., Philadelphia.

Union County: *Death.*—Harry M. Wilson (Jefferson Med. Coll., '77) in New Berlin, December 11, from paralysis of the brain, aged 62.

Venango County: *Death.*—John R. Borland (Philadelphia Univ. of Med. & Surg., '65) in Franklin, December 26, aged 89.

Westmoreland County: *Removals.*—James C. Fleming from Scottdale to 649 Herron Ave., Pittsburgh; George H. Gillis from Youngwood to 3725 Brighton Road, Pittsburgh.

York County: *New Member.*—Gibson Smith, York.

PAYMENT OF PER CAPITA ASSESSMENT

The *per capita* assessment for the year 1916 has been received from component county societies since December 11, as acknowledged on page 225 of the December Journal, as follows:

Jan. 5, '17,	Allegheny	976	6725	$2.75
Jan. 6,	Lackawanna	207–209	6726–6728	8.25

The *per capita* assessment for the year 1917 has been received from component county societies since December 12, as acknowledged on page 225 of the December Journal, as follows:

Dec. 12,	Westmoreland	5–12	122–129	$22.00
Dec. 14,	Juniata	7	130	2.75
	Huntingdon	1–3	131–133	8.25
Dec. 15,	Clearfield	9–11	134–136	8.25
	York	1–19, 21–31	137–166	82.50
Dec. 16,	Elk	2–5	167–170	11.00
Dec. 18,	Franklin	1–2	171–172	5.50
	Cambria	4–28	173–197	68.75
	Lehigh	1–4	198–201	11.00
Dec. 20,	Lawrence	1–4	202–205	11.00
Dec. 26,	Butler	10–19	206–215	27.50
	Northumberland	15–16	216–217	5.50
	Greene	1–14	218–231	38.50
	Greene	15	232	2.75
Dec. 27,	Erie	1–6	233–238	16.50
	Greene	16–17	239–240	5.50
	Perry	1–5	241–245	13.75
Dec. 30,	Huntingdon	4–17	246–259	38.50
	Berks	1–5	260–264	13.75
	Bradford	2–9	265–272	22.00
1917				
Jan. 3,	Union	1–7	273–279	19.25
Jan. 4,	Greene	18	280	2.75
	Westmoreland	13–22	281–290	27.50
	Armstrong	1–29	291–319	79.75
Jan. 5,	Juniata	8	320	2.75
	Somerset	8	321	2.75
	Northumberland	17–26	322–331	27.50
	Montgomery	1–20	332–351	55.00
Jan. 6,	Juniata	9	352	2.75
	Crawford	8–15	353–360	22.00
	Columbia	3–20	361–378	49.50
	York	32–46	379–393	41.25
Jan. 8,	Montgomery	21–30	394–403	27.50
	Tioga	2	404	2.75
	Cambria	29–50	405–426	60.50
	Lawrence	5–22	427–444	49.50
Jan. 9,	Armstrong	30–32	445–447	8.25
	Berks	6–10	448–452	13.75
	Fayette	1–37	453–489	101.75
Jan. 10,	Montgomery	31–40	490–499	27.50
	Mercer	1–2	500–501	5.50
	Union	8–9	502–503	5.50
	Bradford	10–20	504–514	30.25
Jan. 11,	Berks	11–38	515–542	77.00
	Wyoming	9–11	543–546	11.00
Jan. 12,	Cumberland	1–11	547–557	30.25
	Elk	6–13	558–565	22.00
Jan. 13,	Wyoming	12	566	2.75
	Northampton	1–19	567–585	52.25
	Montgomery	41–50	586–595	27.50

STATE NEWS ITEMS

MARRIED

Dr. Raymond Jack Hauser and Miss Ethel Bodine, both of Danville, September 15.

Dr. Francis Raymond Keating, Philadelphia, and Miss Jane Uhrich, Lebanon, December 26.

DIED

Dr. John W. Nelson (Univ. of Pennsylvania) in Lancaster, December 13, aged 62.

Dr. Isaac M. Taylor (Univ. of Pennsylvania, '66) in Edinboro, November 19, aged 78.

Dr. Reuben Eiseman (Jefferson Med. Coll., '87) in Latrobe, December 12, aged 54.

Dr. Kenneth Charles Richman (Jefferson Med. Coll., '11) in Philadelphia, December 8, aged 30.

Dr. Edgar Levander Handrick (Jefferson Med. Coll., '63) in Friendsville, November 5, aged 76.

Dr. George E. Nickel (Physio-Medical Institute, Cincinnati, '81) in Belle Vernon, November 13, aged 57.

Dr. William F. Christ (registration, Berks County, Pa.) in Weissport, November 23, from senile debility, aged 83.

Dr. George Albert Blair (Coll. of Phys. & Surg., Baltimore, '80) of Chambersburg, in Philadelphia, December 6, aged 58.

Dr. Benneville H. Miller (Southern Homeopathic Med. Coll., Baltimore, '89) in Mohnton, November 23, from cerebral hemorrhage.

Dr. Walter Lear Williams (Hahnemann Med. Coll., Philadelphia, '03) in Mount Carmel, December 3, from acute dilatation of the heart, aged 37.

Dr. John George Leitch (Univ. of Pennsylvania, '10) of Philadelphia, on duty in Marfa, Texas, died at that place December 12, from paratyphoid fever, aged 40.

ITEMS

Dr. Eugene Levering, Stroudsburg, is convalescing after a formidable abdominal operation.

Dr. William S. O'Neill Sherman has returned to Pittsburgh after a study of war conditions in Europe.

L. L. Walton, Williamsport, has been reappointed a member of the State Pharmaceutical Examining Board.

Dr. J. B. McAlister, Harrisburg, was elected a trustee of Gettysburg College at the last semi-annual meeting of the board.

Dr. Clarence W. Prevost, Pittston, is recovering from an operation to which he recently submitted at the Pittston Hospital.

Dr. Samuel G. Dixon, Commissioner of Health, was on December 19, again elected president of the Philadelphia Academy of Natural Sciences.

Dr. J. Madison Taylor, Philadelphia, addressed the College of Physicians, Pittsburgh, December 14, on "The Scope of Reconstructive Therapeutics."

Dr. Joseph Sailer, Philadelphia, addressed the New York Academy of Medicine, December 21, on "The Clinical Aspects of the Diseases of the Ductless Glands."

Dr. George B. Kalb, Erie, who has retired from practice and removed to California, was recently presented a silver loving cup by the Erie Antituberculosis Society.

The Pittsburgh Academy of Medicine has purchased the property of the Bellefield Club, Craig Street, lot 50 by 140 feet with a two-story brick building, price $2,500.

Industrial Accidents.—There were 251,488 casualties reported to the State Department of Labor and Industry for 1916; 2,587 of these were killed, an average of 215 fatal accidents per month.

The Woman's Medical College, it is reported, has succeeded in raising the $200,000 endowment fund, but the Journal knows of no good reason why efforts should not be continued to increase this amount.

The Philadelphia Pediatric Society held its 20th anniversary meeting on December 12, Dr. Henry Dwight Chapin of New York delivering an address on "The Relationship of Pediatrics to General Medicine."

Pneumonia in Pittsburgh.—Of sixty-six cases reported in Pittsburgh from December 9 to December 18, fifty-three proved fatal, and of the 1,441 cases reported in the year ending December 1, 1,270 were fatal.

Drs. J. Lawrence Eisenberg, Norristown, Howard M. Kuehner, Philadelphia, and M. C. Neufeld, Chester, were recently elected president, treasurer and secretary, respectively, of the Philadelphia Medical Examiners' Association.

The Fayette County Physicians announced on December 8 that the regular hours for professional visits would be from 7 a. m. to 6 p. m. Fifty cents extra will be added for visits between 6 p. m. and 10 p. m. From 10 p. m. to 7 a. m. the regular fee will be doubled.

H. Lyndley Hosford, who has been secretary to Commissioner Samuel G. Dixon for five years, has resigned to assume charge of the campaign of a committee of citizens of New York State, proposing the enactment of health laws similar to those of Pennsylvania.

The Germantown Hospital will receive $100,000 by the will of the late Mrs. Charles W. Harkness, daughter of Mrs. William G. Warden of Germantown. The New York Babies' Hospital, St. Mary's Free Hospital for Children, New York; and Flagler Hospital, St. Augustine, Fla., also receive $100,000 each.

Case of Leprosy.—Toney Sedmase, a Sicilian, who came to America about two years ago, is in the Williamsport Hospital, suffering from leprosy. More than a year ago he went from New York State to McKean County, and from there to Wheelerville, where he was employed on the Susquehanna and New York Railroad.

Jefferson Chair Endowed.—Announcement was made, December 21, at the meeting of the trustees of the Jefferson Medical College that Miss Anna J. Magee had endowed a professorship to be known as the Magee Professorship of the Practice of Medicine and Clinical Medicine. The chair is held by Professor Thomas McCrae. One hundred and fifty thousand dollars was given, it is said, by Miss Magee to perpetuate the chair.

The Philadelphia Medical Clinic Fraud.—The United States District Court, on December 18, convicted several members of the Philadelphia Medical Clinic, 1117 Walnut Street, who have, it is alleged, defrauded foreigners to the amount of $200,000 in a short time by the use of the mails. The men are Leon Wilkowski, vice president and secretary of the clinic; John J. Grainius, manager, and two physicians, William S. Yoder and J. T. Russell. A fifth man, for whom countrywide search is being made, is John D. Naujokas, president of the clinic. He has been missing since June, 1915, when the clinic's offices were raided by the United States Postal Inspectors.

Examination of Schoolchildren Approved.—Dr. Samuel G. Dixon, state commissioner of health, has approved the plan adopted in Pittsburgh to examine all schoolchildren before the opening of school and has advised other school districts to adopt it if possible. In Pittsburgh the children come in groups of a dozen or more to the schools to be examined by voluntary physicians and medical inspectors and are given health certificates to show they are free of infantile paralysis, diphtheria, scarlet fever and measles. However, no state order for such examination has been sent out.

Vital Statistics.—The total number of births reported to the State Department of Health for September was 18,997, and the number of deaths for the same month was 10,320. The following are some of the causes of death: 1,650 from diarrhea and enteritis, under 2 years; 689 from Bright's disease and neuritis; 685 from early infancy; 644 from tuberculosis of the lungs; 548 from pneumonia; 539 from cancer; 226 from infantile paralysis; 218 from diarrhea and enteritis, over 2 years; 161 from typhoid fever; 122 from diphtheria; 107 from whooping cough; 71 from diabetes; 66 from suicide; 36 from measles.

The College of Physicians of Philadelphia on January 3 elected the following officers and elective committees for the year 1917: President, Dr. Richard H. Harte; vice president, Dr. William J. Taylor; censors, Drs. James Tyson, William W. Keen, George E. deSchweinitz and Thomas R. Neilson; secretary, Dr. Francis R. Packard, 19 South Twenty-Second Street; treasurer, Dr. John B. Roberts; honorary librarian, Dr. Frederick P. Henry; committee of publication, Drs. G. G. Davis, Thompson S. Westcott and Walter G. Elmer; library committee, Drs. Francis X. Dercum, George W. Norris, Astley P. C. Ashhurst, Charles W. Burr and William Pepper; committee on Mütter Museum, Drs. Henry Morris, George P. Müller and George Fetterolf; hall committee, Drs. John K. Mitchell, Thomas H. Fenton, B. Alex. Randall, E. Hollingsworth Siter and J. Norman Henry; committee on directory for nurses, Drs. Thomas G. Ashton, Frederick Fraley and Arthur Newlin.

The Montgomery County Medical Society at its meeting of November 1 was addressed by Dr. Thomas McCrae of Philadelphia on "Focal Infection," who took up the different parts of the body where concealed pus may start a systemic infection and quoted many interesting cases that have come under his notice. The meeting of November 15 was held in the Pottstown Hospital and was in the form of a clinic given by the members of the staff which consisted of the following: History of the recent typhoid epidemic in Pottstown and vicinity; exhibition of a patient who had had an extensive carcinoma of the face, with a perfect recovery following the desiccation treatment; a case of fractured pelvis with later abscess of the kidney, kidney being removed perfect recovery resulted; case of nephritic colic and cystic kidney and congenital absence of the ureter; case of pyonephrosis; photographs of a case of fibroneuroma affecting all the nerves of the body; case of talipes varus which had been treated by mechanical methods; case of epithelioma; case of epithelioma of lip treated by Roentgen rays with excellent result; history of a cancer of the breast; history of a case of cesarean section recently performed on account of a former ventrosuspension.

GENERAL NEWS ITEMS

THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK on December 2 defeated a resolution asking for the repeal of the state law forbidding instruction in measures for preventing conception by a vote of 210 to 72.

THE NEW ENGLAND ASSOCIATION OF BOARDS OF PHARMACY, in session at Boston last month, adopted resolutions announcing a determination to suppress illegal sales of drugs in stores within its jurisdiction and to close stores that refused to comply with the state laws and regulations.

NEW AMERICAN HOSPITAL FOR FRANCE.—A temporary hospital installed by the American ambulance service at La Chapelle station with accommodations for 850 wounded, was accepted December 30 by Justin Godart, under secretary of war for medical service. Mrs. W. K. Vanderbilt is one of the principal contributors.

CONGRESS ON MEDICAL EDUCATION, PUBLIC HEALTH AND MEDICAL LICENSURE.—The next Congress on Medical Education, Public Health and Medical Licensure, participated in by the Councils on Medical Education and on Health and Public Instruction of the American Medical Association, the Federation of State Medical Boards of the United States and the Association of American Medical Colleges, will be held at the Congress Hotel, Chicago, Feb. 5 and 6, 1917.

COUNCIL ON PHARMACY AND CHEMISTRY.—During December the following articles have been accepted for inclusion in New and Nonofficial Remedies: Formin tablets, 5 grains and 7½ grains, veronal tablets, 5 grains, Merck and Company; pertussis bacterin-Mulford, H. K. Mulford Company; iocamfen, iocamfen ampules, Schering and Glatz; urease-Squibb, E. R. Squibb and Sons; and acetylsalicylic acid, neutral solution of chlorinated soda, nonproprietary articles.

AMERICAN OTO-LARYNGOLOGISTS through a special committee are endeavoring to secure contributions of from one dollar upward, for the relief of the wife and four children of the late Dr. Jules Broeckaert of Ghent, Belgium, who died July 17. Dr. Broeckaert was editor of *Le Larynx* and corresponding member of a number of laryngological societies, and had a good practice in Belgium. When his country was invaded he was compelled to abandon all he possessed and with his family went to London. Contributions may be sent to Dr. Emil Mayer, Treasurer, 40 East Forty-First Street, New York City.

BABY WEEK FOR 1917.—Stimulated by the success of Baby Week last year, the Children's Bureau, U. S. Department of Labor, is making plans for a bigger and better Baby Week for 1917. The bureau and the General Federation of Women's Clubs have agreed on the week beginning May 1 as the time most generally suited for the event, and urge that this week be adopted wherever local conditions permit. An effort will be made to have the welfare work incident to the week extended so as to cover all children still at home with their mothers and not limit the work to the period of infancy only.

COMPULSORY HEALTH INSURANCE OPPOSED BY LABOR.—At the conference on social insurance, in Washington, D. C., December 5-9, Samuel Gompers, president of the American Federation of Labor, protested in no uncertain terms against the enactment of legislation providing for compulsory health insurance. Mr. Gompers argued that compulsory social insurance would tend to make class distinction rigid; and that it would not reduce poverty, because the relief afforded by it would be merely temporary. Organized labor, he said, would not give its consent to any effort to compel those in industrial activities to take out health and accident insurance policies.

U. S. DOCTORS TOLD TO DISPENSE NO HEROIN.—To aid in counteracting an increasing use of heroin throughout the country, all physicians of the Federal Public Health Service have been told to dispense none of the drug hereafter for any purpose and to return immediately to the headquarters of the service any quantities of it they have on hand. In announcing the step on December 11, public health officials expressed hope that this example would have a wide influence among general practitioners. A series of experiments has shown that less dangerous agents possessed as powerful medical qualities, and that the sooner physicians realized this the easier it would be to curb the constant increase in the number of heroin users. The order to discontinue dispensation of heroin applies also to its salts.

LIBRARY AND MUSEUM FOR THE FORSYTHE DENTAL INFIRMARY FOR CHILDREN, BOSTON.—At the October meeting this new department was inaugurated, which should not only be the safety vaults to preserve the results and experiments daily being made at this institution but of preceding discoveries. At present they have the nucleus of a dental library which they are planning to develop as fast as possible and they ask for contributions of any past volumes of dental journals, etc., and solicit any information which will lead to the securing of any old volumes of interest. They also request reports of all oral abnormalities and the saving for them of any unusual structure, etc. For donations permanent acknowledgement will be given. Cooperation is earnestly requested. Any suggestions will be gratefully received and information furnished by Frederick A. Keyes, D.M.D., Librarian and Curator of Museum.

"WHAT'S THE MATTER WITH THE DOCTOR?"—*The Medical Review of Reviews* for January will contain a symposium on the Medical Profession with contributions from distinguished laymen answering the question at the head of this item. Twenty-five cents sent to the Medical Review of Reviews, 206 Broadway, New York, will bring a copy. Some of those responding to the question are: Andrew Carnegie, John Wanamaker, Nathan Straus, Theodore N. Vail, Jerome K. Jerome, Israel Zangwill, the Princess Troubetzkoy, William Dean Howells, Gertrude Atherton, Robert W. Chambers, Alice Hegan Rice, Margaret Deland, Theodore Dreiser, George W. Cable, Julian Hawthorne, Ellis Parker Butler, Bruno Lessing, Booth Tarkington, George Kennan, Ernest Thompson Seton, Edith M. Thomas, Bliss Carman, Rose Hartwick Thorpe, Wallace Irwin, Witter Bynner, John Kendrick Bangs, Minnie Maddern Fiske, Wilton Lackaye, James K. Hackett, William C. de Mille, Charles Rann Kennedy, Eugene Walter, John Philip Sousa, Andrew D. White, David Starr Jordan, E. Benjamin Andrews, the late Booker T. Washington, Charles F. Thwing, Nikola Tesla and Hudson Maxim.

BUREAU OF MEDICAL EDUCATION AND LICENSURE

MEMBERS BY APPOINTMENT

John M. Baldy, Pres., 2219 DeLancey St., Philadelphia.
Daniel P. Maddux, Chester.
Irvin D. Metzger, Pittsburgh.
Calvin L. Johnstonbaugh, Bethlehem.
Adolph Koenig, Pittsburgh.

Members Ex-Officio.

Nathan C. Schaeffer, Sec., Dept. of Pub. Inst., Harrisburg.
Samuel G. Dixon, Harrisburg.

THE LEGALITY OF THE NURSE ANESTHETIST

To the Editor: The issue has been raised in Pennsylvania as to the legality of the nurse anesthetist. A society of anesthetists, but few of whose members are Pennsylvanians, are attempting to break up the system of the use of the trained nurse for the giving of anesthesia. In the course of their propaganda their representatives have appeared in Pennsylvania with the usual drastic methods of the walking delegate of trade unionism. In order that there may be no misapprehension in the minds of any hospital or surgeon in the state of Pennsylvania as to the legality of the use of the nurse anesthetist, this Bureau requested the official opinion of the Attorney General of the state on this subject. This opinion fortifies the position the Bureau of Medical Education and Licensure has taken in this matter, namely, that it is perfectly legal for the nurse to administer the anesthetic when directed by the physician to do so. I am enclosing a copy of the opinion of the Attorney General which I am asking you to publish in the Journal for the benefit of the medical profession of the state.

Very truly yours,
J. M. Baldy.

OFFICE OF THE ATTORNEY GENERAL
Harrisburg, Pa.
December 28, 1916.

Dr. J. M. Baldy,
President of Bureau of Medical
Education and Licensure,
Philadelphia, Pa.

Sir:—I have your favor of the 14th instant in which you request the opinion of this department on the following question:

"A physician sees a patient, examines her and determines that it is necessary that an anesthetic be administered for the purpose of the performance of an operation or for other reasons. He instructs the nurse to administer the anesthetic. Is this action on the part of the nurse illegal in the State of Pennsylvania?"

The question arises in connection with the practice of medicine and surgery.

By the Act of June 3, 1911, P. L. 639, Section 1, it is provided:

> "That on and after January first, nineteen hundred and twelve, it shall not be lawful for any person in the State of Pennsylvania to engage in the practice of medicine and surgery, or to hold himself or herself forth as a practitioner in medicine and surgery, or to assume the title of doctor of medicine and surgery, or doctor of any specific disease, or to diagnose diseases, or to treat diseases by the use of medicines and surgery, or to sign any death certificate, or to hold himself or herself forth as able to do so, excepting those hereinafter exempted, unless he or she has first fulfilled the requirements of this act and has received a certificate of licensure from the Bureau of Medical Education and Licensure created by this act, which license shall be properly recorded in the office of the Superintendent of Public Instruction at Harrisburg."

This section of the law contains within it practically everything that is included in the practice of medicine and surgery —which has been defined to consist in three things:

> "First, in judging the nature, character and symptoms of the disease; second, in determining the proper remedy for the disease; and third, in giving or prescribing the application of the remedy to the disease."

Underwood vs. Scott, 23 Pac. 942 (Kansas).

These are not the functions of a nurse. The Act of May 1, 1909, P. L. 321, which provides for the examination and registration of nurses, with the purpose in view of safeguarding the public from insufficiently trained and incompetent nurses expressly provides (Section 9):

> "Nor shall anything herein contained be considered as conferring any authority to practice medicine, or to undertake the treatment and cure of disease."

The question submitted to this department, therefore, is in effect, whether the administration of an anesthetic by a nurse, acting under orders and direction of a physician or surgeon, amounts to the practice of medicine by such nurse.

There are many things that a nurse may lawfully do in the field of medicine and surgery, when acting under the direction and supervision of a physician or surgeon, which she could not do of her own initiative or independent of a physician's orders or instruction.

For example, she may administer drugs of all types, narcotics and stimulants; give hypodermic injections of morphia, hypodermoclysis and enemas; take the temperature and pulse of the patient and give prescribed remedies in case of collapse or undue excitement; give baths and massage; place dressings and bandages, and apply salves, prepare saline solutions to be injected into the blood vessels under certain conditions and many other duties peculiarly within the ministrations of the nurse in the sick room.

The prescribing of these various things is the duty of the physician; but under his orders and direction, the nurse may lawfully administer them—otherwise her usefulness would be very largely curtailed, if not wholly destroyed. The nurse may not assume the place of the physician and practice medicine and surgery, but she assists him in his practice, and in some respects serves as eyes, hands and feet for the physician —she is a human instrument used and employed by the physician in the treatment and cure of disease.

An anesthetic is a substance capable of producing temporary loss or impairment of feeling or sensation.

"Anesthetize" is defined in the Century Dictionary: "To bring under the influence of an anesthetic agent, as chloroform —render insensible, especially to pain."

Anesthetics are used in the practice of medicine and surgery largely in connection with surgical operations for the purpose of rendering the patient insensible to pain.

Whether an anesthetic shall be used in a given case and what particular anesthetic shall be employed is a question for the physician and surgeon alone. To determine these questions comes within the practice of medicine.

But there is nothing in the law which places the administration of anesthetics on a different or higher plane than any other drug. The physician must prescribe it, and directs its administration, but the trained nurse, acting under his orders and directions may administer it without assuming any of the functions of the physician. From the very nature of the case, the nurse generally acts more directly under the supervision of the physician in the administration of anesthetics than she does with respect to most drugs which are frequently, if not usually, administered during the absence of the physician, but in accordance with his directions.

I take it that your inquiry presupposes that the nurse has had training in administering anesthetics and is competent to do so.

It must be remembered that all these Acts for the examination and licensing or registration of physicians, nurses, etc., are not intended to protect these several professions against competition, but are an exercise of the police power of the state to protect the public against incompetent and unskilled practitioners, and should be construed solely with that end in view.

You are accordingly advised that it is not illegal for a nurse who has been trained in the administration of anesthetics to administer such anesthetic as may be prescribed by a physician, under and in accordance with his orders and directions.

Very truly yours,
(Signed) Wialliam H. Keller,
First Deputy Attorney General.

Your local society is now considering plans for the work of the year. Be on hand, pay your dues, and help do what ought to be done. Be a "live one" in your society!

BOOKS RECEIVED

Books received are acknowledged in this column, and such acknowledgement must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

My Birth. The Autobiography of an Unborn Infant. By Armenouhie T. Lamson. New York: The Macmillan Company. 1916. Price, $1.25.

Transactions of the Thirty-Eighth Annual Meeting of the American Laryngological Association, held at Washington, D. C., May 9, 10 and 11, 1916. New York. Published by the Association, 1916.

A Textbook of Organic Chemistry. For Students of Medicine and Biology. By E. V. McCollum, Ph.D., Professor of Agricultural Chemistry, University of Wisconsin. New York: The Macmillan Company. 1916. Price, $2.25.

Public Health Nursing. By Mary Sewall Gardner, R.N., Superintendent of the Providence District Nursing Association; President of the National Organization for Public Health Nursing, 1913-1916. With an Introduction by M. Adelaide Nutting, Professor of Nursing and Health, and Director of Department Teacher's College, Columbia University. New York: The Macmillan Company. 1916. Price, $1.75.

The Practical Medicine Series. Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Under the General Editorial Charge of Charles L. Mix, A.M., M.D., Professor of Physical Diagnosis in the Northwestern University Medical School. Series 1916, 10 volumes, $10.00 Volume VII: Obstetrics. Edited by Joseph B. De Lee, A.M., M.D., Professor of Obstetrics, Northwestern University Medical School. With the Collaboration of Herbert M. Stowe, M.D., Assistant Professor of Obstetrics, Northwestern University Medical School; Attending Gynecologist to Cook County Hospital. Price, $1.35. Volume VIII: Materia Medica and Therapeutics. Edited by George F. Butler, Ph.G., A.M., M.D., Emeritus Professor of Therapeutics, Chicago College of Medicine and Surgery, Chicago. Preventive Medicine. Edited by William A. Evans, M.S., M.D., LL.D., Ph.D., Professor of Preventive Medicine, Northwestern University Medical School. Price, $1.50. Chicago: The Year Book Publishers, 327 South LaSalle Street.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics, Materia Medica and Diagnosis in the Jefferson Medical College, Philadelphia. Assisted by Leighton F. Appleton, M.D., Instructor in Therapeutics, Jefferson Medical College, Philadelphia. Philadelphia: Lea & Febiger, 708 Sansom Street. Subscription price, $6.00 per annum. December, 1916. Contents: Diseases of the Digestive Tract and Allied Organs, the Liver, Pancreas and Peritoneum, by Edward H. Goodman, M.D.; Diseases of the Kidneys, by J. Harold Austin, M.D.; Genito-Urinary Diseases, by Charles W. Bonney, M.D.; Surgery of the Extremities, Shock, Anesthesia, Infections, Fractures and Dislocations, and Tumors, by Joseph C. Bloodgood, M.D.; Practical Therapeutic Referendum, by H. R. M. Landis, M.D.; Index.

BULLETIN EXCERPTS

Bulletin, Crawford

The Bulletin is published for your benefit. You may have wondered *why* it appears so regularly on your desk each month. Now you know. It is very necessary that you read each issue. This you *do not do*. We know this because you frequently get your knowledge of Crawford County Society proceedings by the "indirect method." The Bulletin is the *direct* means of telling you many things that you ought to know, but do not. We are trying to make a plan that will help you to remember to read it. Have you any suggestions?

Bulletin, Lawrence

Don't believe half the lies you hear about your brother doctor anyhow. Patients seem to delight in telling stuff about "the other doctor." Just go ahead, do the best work possible and keep your equanimity and you will come out all right.

BOOK REVIEWS

THE NERVO-MUSCULAR MECHANISM OF THE EYES AND ROUTINE IN EYE WORK. By G. C. Savage, M.D., Author of "New Truths in Ophthalmology" (1893); of "Ophthalmic Myology" (1902-1911); of "Ophthalmic Neuro-Myology" (1905); Ex-President of the Nashville Academy of Medicine, of the Tennessee State Medical Association, and of the Southern Medical Association. Three full-page plates and four cuts. Published by the author, Nashville, Tenn. Price, $1.00.

This little book of seventy pages gives a clear and easy introduction to the study of the ocular muscles from the viewpoint of the muscles themselves and from the viewpoint of the brain centers controlling them in their individual and associated actions. One who has conscientiously studied this book will have such a knowledge of ophthalmic myology that he will appreciate its importance to the patient, and if he be engaged in ocular practice he will be inclined to pursue the subject still further. L. F. P.

THE IDEALS AND ORGANIZATION OF A MEDICAL SOCIETY. By Jamieson B. Hurry, M.A., M.D., Author of "A History of the Reading Pathological Society," Westfield, Reading, Eng. London, 7 Great Marlborough Street: J. & A. Churchill.

This little book of 51 pages is well printed on good paper and nicely bound, all in keeping with the great importance of the subject. Many of the details of organization appear almost trivial to those of us who are so familiar with various medical societies.

The following excerpts from the various chapters are of themselves worth repeating and are interesting as illustrating the slight difference in thought and writings between an English and an American author on medical societies.

"A medical society exists for the advancement of medicine and for the cultivation of good fellowship in the medical profession. In proportion as these objects are attained does a society realize its ideals. The *ars medendi* has never exacted such devotion from its votaries as it does today. Astonishing progress is taking place in every department of medicine, and only by incessant vigilance and zeal can the conscientious practitioner hope to keep his daily practice abreast of the latest advances of science. Among the forces that contribute most to the maintenance of a lofty standard of life and work, the membership of a medical society ranks high. On the one hand opportunities of collective investigation and criticism are afforded, and the perennial danger of mental progeria is lessened. On the other hand the society promotes social intercourse and a sense of copartnership between confrères, and tends to banish 'envy and hatred and all uncharitableness.'

"It is a great privilege to belong to a medical society and to enjoy the social and professional benefits conferred by such membership. On the other hand every member should advance the prosperity of the society by regularity of attendance and by contributions to its agenda according to his opportunities. The ideal society strives for the good of each member; while each member should strive for the good of the whole society. Every practitioner of medicine from time to time meets with abnormal forms of disease, which will be instructive to his colleagues. Nor do the Nestors of the profession escape difficulties of diagnosis and treatment which may be diminished or removed by consultation with others. Every effort should be made to embrace in membership all practitioners of good repute living in the neighborhood. This ideal should not be found difficult of attainment, with an efficient organization. Which of us is so strong as not at times to need the countenance and support of his fellows? And what greater privilege for the strong than to assist by example and counsel those younger and less well-equipped confrères on whom practice often imposes a galling yoke? In truth the advantages conferred by the society should be so great that a member feels a distinct sense of loss, if from any cause he has unavoidably been prevented from attending.

"The annual subscription varies considerably according to the work attempted. A guinea or half-guinea is the usual tax, although some societies, such as the Harrogate Medical Society, are content with a modest two shillings and sixpence. A difference is sometimes made between town and country members, in consideration of the fact that the former reap greater advantages from the society than do the latter. Members are wise to submit to a liberal subscription, since the extra few shillings are more than recouped by the increased benefits which can be supplied in return. For example, books, periodicals and directories, if provided by the society, need not be purchased by the individual.

"Care should be taken to secure an ample and varied agenda. There is no better test of good secretaryship than the ability month by month to supply an appetizing *menu*. Living specimens, morbid specimens, microscopical slides, x-ray photographs, new instruments and drugs, and a sufficiency of formal papers should be provided as occasion offers, so that no member may fail to find some item that will please his palate. Nor should common specimens such as an appendix, a calculus or a mole be despised. Many facts can only be established by an accumulation of examples, and common ailments are in a sense the most important because most prevalent. Two or three meetings in the year may be allocated for purely clinical work, every member being invited to exhibit patients suffering from unusual types of disease. The first hour may be devoted to the examination of patients, the remainder of the evening being spent in discussing problems of diagnosis, prognosis or treatment.

"The provision of library is one of the chief functions of a medical society, and no effort or expense should be spared in raising its efficiency to the highest level. Constant association with the best books greatly enhances the standard of practice, and forms the best antidote to 'rule of thumb' methods. The primary object of a library is to supply the most literature dealing with every department of medicine. Indispensable are those comprehensive systems and monographs which many practitioners with slender incomes are unable to place on their own shelves but which are constantly required for reference. Equally important are the great weekly and monthly journals, proceedings of the Royal Society of Medicine, medical dictionaries, directories and year books.

"Almost as important to a progressive medical society as a library is a museum, however incomplete and humble in comparison with our great national collections. Such an institution provides an instrument of research, cultivates the perceptive faculty, fosters the habit of collecting, and facilitates objective, as compared with subjective, teaching. It is not necessary that the museum should be controlled by the society, for in many cases its association with the local hospital is found to answer well. The essential condition is that the collection shall be available for purposes of study, and for the illustration of papers and discussions at the meetings of the society."

SOCIETIES

THE PHILADELPHIA CLINICAL ASSOCIATION

Meeting of Dec. 4, 1916, consisting of five-minute talks on "Favorite Therapeutic Measures."

Dr. William Egbert Robertson referred to infections in general and the paucity of definite clinical measures other than oral and general hygiene and expectancy. A remedy of distinct value in the milder febrile processes and in the rheumatic infections, even those with acute endocarditis, he referred to as 2-4-6, being a combination of 2 grains of Dover's powder, 4 of acetphenetidin and 6 of aspirin. At present, for obvious reasons, the acetphenetidin is replaced by 1 grain each of caffein and acetanilid. One of these are given every hour for three doses, followed by a sweat, to be repeated once daily. He also referred to colloidal dispersion in the management of infections, with particular reference to the intravenous use of various proteins and starch, and cited some illustrative cases of typhoid fever and pneumonia. Typhoid fever particularly, and especially in its early stages, will often respond in a most surprising manner, the temperature falling to normal after a single injection, or a very severe case being converted into one of less severity, and after several intravenous injections of a typhoid and mixed paratyphoid convalescence rapidly sets in.

The third topic discussed was a somewhat trite one, namely the use of digitalis, but it seems necessary to advert to the tendency to give digitalis over long periods, often to the detriment of the patient, in that nodal rhythm or distinct arrhythmia not seldom occurs under such conditions. The speaker advised a prescription for a definite amount, preferably of the infusion, say 8 ounces to be given as follows: ½ ounce to the dose, once the first day, twice the second, three times the third, four times the fourth day, then three, two and one dose respectively on successive days. Preceding this an elaterium, aloin, belladonna and strychnin pill should be used to favor elimination, which makes less digitalis requisite. Grain $\frac{1}{20}$ of elaterium to avoid emesis and the same of belladonna, for with a small dose of belladonna less aloin is necessary and there is less peripheral inhibition of the vagus.

Dr. William Duffield Robinson: Rheumatoid arthritis, or any other name you may prefer as descriptive of that chronic deforming inflammation of the joints, requires a finding of the focus or foci of infection before corrective treatment may be established. Freedom from the possibility of infection must be established by discovering and removing infecting supply points from about the roots of the teeth, the tonsils, the facial sinuses and middle ear, the pelvic organs in the female and deep urethra and prostate gland in the male, and lastly the gastrointestinal tracts, including gallbladder, appendix and diverticula. The most frequent source will usually be found in abnormalities of position and behavior of the large gut. A course of two to four days' Roentgen-ray observation of the entire tract under barium feeding is usually essential. In the transverse colon will most usually be found the fountain supply of the poison germs. An absolutely exclusive milk diet with a free use of bulgarian bacillus culture, both given every two or three hours during the day for several months, I have found most effective. I have seen results from the treatment which were most astonishing and gratifying even after active, constant, well-tried courses of all the usual treatments had entirely failed. The only medication has been three to five drops of tincture of iodin in half a glass of water an hour before milk, three times a day. I have had a high enema given every second day containing some epsom salts and a continuance of general massage. After three months, if the cause lies in the intestines, a beginning of permanent repair may be expected, a gain in weight and cessation of pain. The bulgarian bacillus culture is that made by the Philadelphia Dairy Laboratory at 1937 Market Street; the dose is one tablespoonful in half a glass of water and a little sugar, half a teaspoonful every two hours.

Dr. William Harmar Good: Recently one of our members who had been interested in a case of chronic deforming polyarthritis (we would have called it rheumatoid arthritis a few years ago), asked what I was doing for her to cause such improvement. I told him KI and sodium salicylate. Later he told a mutual friend that Good did not tell very much in detail how he helped his old rheumatics. If what I have used, and so often very effectively, was of interest to him, it may be of interest to you. Internally over long periods I use 4 or 5 grains of potassium iodid and 15 to 20 grains of sodium salicylate three times a day. and of equal importance, local application of guaiacol one part and tincture of iodin three parts. A goodly number improve under it. The salicylates may have only an analgesic effect, but they at least quiet the joint, a medical splint.

Another case of chronic polyarthritis might be of interest. An old lady of 75 years had been sick for a number of years and in bed for three months, getting worse all the time. She had a slow pulse, was costive, was overweight, had lost much of her hair, and the finger nails had become thin and very brittle. I started her on thyroid, but did not begin treatment on 5-grain doses, or I would probably have caused her death. She was given $\frac{1}{5}$ grain, slowly increased until she was taking 1 grain of U. S. P. powdered thyroid three times a day. In six weeks she was up and around, and several weeks later was out in her garden, and for two years has been enjoying life almost entirely free from pain. Her nails are normal again. This one fact clearly indicates to me that the thyroid was the cause of the improvement.

In eighteen years of private practice there have been but two cases of leg ulcer that I have not been able to clear up in a couple of months' treatment; one of these being an old, 300-pound, chronic nephritic of not exceptionally clean habits to say the least. As I remember dispensary treatment, the nurse would take off the dressing and as thoroughly as possible irrigate the ulcer with a bichlorid solution, apply some ointment, the nearest at hand would do if it had not been used before on the case, a piece of gauze placed on it and kept in place at least until the patient gets out of the hospital by a portion of a new bandage or the old partially soiled one that the patient had rolled while waiting. Personally I have been able to accomplish much with these cases. The ulcers are not washed off at all, the discharge is simply removed with sterile cotton. If there is a foul and free discharge, the ulcer is touched up with a 1 per cent. potassium permanganate solution, or if probably syphilitic, a small amount of ointment of ten grains of the yellow oxid of mercury to the ounce of petrolatum is applied. A piece of gauze is put over it, and most important of all, the leg is covered from knee to ankle with a generous layer of common cotton, the common cotton being more elastic than the absorbent. The leg is then firmly and thoroughly bandaged, and redressed every four or five days. The patient is cautioned to rest it as much as possible.

Dr. Harry A. Duncan: Experience has taught me that very often vaccines are not properly administered. The tendency is to give the doses too closely together as though one were administering an antitoxin instead of a toxin which must have time to stimulate the production of an antitoxin. It has been proved that in the majority of cases the dose should not be repeated before five to seven days have elapsed. The autogenous vaccine should be used when possible rather than a stock vaccine. A case seen recently with Dr. Oliensis illustrates what autogenous vaccine can do. An athletic man of 28 years had a boy of 6 years suffering with necrosis of the skull, double suppurating parotitis and a greatly swollen knee following an attack of typhoid. A stock vaccine of typhoid bacilli soon worked a complete cure.

Dr. Harry Lowenburg: Broadly considered from the standpoint of the most prominent alimentary symptom, alimentary disturbance may be divided into constipation and diarrhea. I will confine my remarks to the treatment of diarrhea, meaning thereby frequently loose, undigested movements containing mucus and perhaps blood, with or without a change of color and with or without fever. Fat and sugar intolerance are the most common etiologic factors, although mechanically and chemically unmodified curd is often responsible. Fat and sugar tolerance produces an excess of organic acids in the gut. These cause the diarrhea and resulting symptoms. It must not be forgotten that parenteral infections as otitis media, pneumonia, etc., by lowering the food tolerance may be responsible for an alimentary disturbance, especially diarrhea.

From the therapeutic standpoint, in cases of infants without teeth, exclude milk in all forms for from twenty-four to forty-eight hours. Give saccharated tea (one grain saccharin to one quart of weak tea) *ad libitum* but at regular intervals. Then administer larosan (calcium casein elaborated to replace Eiweissmilch by Prof. William Stöltzer of Halle). One package (two-thirds of a gram) is added to one-third of a pint of skim milk and two-thirds of a pint of water. Boil ten minutes and strain. Sweeten with saccharin if desired. The purpose of the larosan is to cause the calcium to combine with the organic acids. This results in a constipated calcium soap stool. Eiweissmilch (Finkelstein) or boiled buttermilk may be employed instead. Gradually increase the milk and decrease the water and finally omit larosan and substitute a low fat and a low sugar formula suitable to the digestive capabilities of the individual infant, always appropriately modifying the curd by boiling or the use of one dram of flour or arrowroot to the pint, or by adding pulverized flour ball and pancreatin. In regard to purgatives, calomel is never used as it is too slow and too irritating and produces occult blood in the stools (Abt). Castor oil is the purgative of choice, but is never used unless a quick relief from toxemia is desired (high fever, convulsions, coma, etc.). During the period of saccharated tea feeding the bowel empties itself on account of the organic acids, beforementioned. While purgatives remove the irritating substances, they are in themselves irritating, relaxing, delaying the return to tone and increasing the tendency to mucous formation. Only one or two irrigations are indicated if toxemia exists or blood. Then use 0.5 to 1 per cent. tannic acid. Never use continuous irrigation; it increases mucus and lessens tone.

In cases of infants and children with teeth, exclude milk entirely for a week or two; saccharated tea, purgatives and irrigations, same as the foregoing. Four meals a day of concentrated starchy food as follows: At 6 a. m., fat-free mutton broth containing one ounce flour or arrowroot to the pint, well cooked. At 10 a. m., same plus stale bread or rice (cooked three hours in water) or farina (two hours in water) or broth plus a two-minute egg rubbed up with bread crumbs. At 2 p. m., broth as above plus rice or farina or mashed baked potato added to the broth, stale bread. At 6 p. m., broth as above. These various foods may be interchanged at the hours indicated. The quantities given are gauged by the appetite. Dilute skimmed milk boiled with flour, arrowroot or larosan, or modified by flour ball and pancreatin (no sugar) is gradually added to the diet replacing one of the broth feedings until all broth is replaced. Gradual return is made to milk formula suitable to digestive capabilities of the individual child. Medicinally, two grains each of extract of pancreatin, taka-diastase and saccharum album, four times a day after food. Occasionally one dram of chalk mixture with 10 minims of tincture of kino is useful in controlling excessive acidity and therefore excessive mucus and peristalsis.

Dr. Wendell Reber: There are three phases from which I shall speak in the brief time allotted to me. Concerning the treatment of conjunctivitis: the ordinary clinical forms of acute catarrhal conjunctivitis are usually amenable to some one of the silver preparations for not longer than ten days to two weeks, after which some preparation of zinc is decidedly to be preferred. Exception must be made of course to gonococcal conjunctivitis which needs much special therapy of its own. If bacteriological diagnosis of pneumococcic conjunctivitis can be made the use of optochin in 1 per cent. solution is ofttimes almost magical in its results. On the other hand in the low grade chronic form of angular conjunctivitis, zinc is our chief reliance. Indeed it is about the only medicament that is of value.

I desire also to speak of the use of vaccines in ophthalmic practice. As Dr. Duncan has pointed out, to have accurate indication is imperative in every case where it is possible. In dealing with intra-ocular inflammations it is manifestly impossible to get at the original focus of infection, so that autogenous vaccines are simply out of the question. We therefore get our indication by way of complement fixation tests for the following organism: *Spirochaeta pallida,* Neisser, pneumococcus, streptococcus, staphylococcus, influenza and *Bacilli coli.* When we have had a report on these organisms we are frequently in a position to treat the case on accurate findings. Under these circumstances we repose a great deal of confidence in sensitized bacterins. The result in gonococcal cases have been surprising. Indeed they are quite as magical as those seen following salvarsan in the secondary syphilitic cases. The same may be said of infections due to other organisms.

In the obscure or intra-ocular inflammations that are negative to all the complement fixations we have mentioned, I have found pilocarpin diaphoresis to be of even greater service than the diaphoresis mentioned by Dr. Robertson as secured with the 2-4-6 combination. This I attribute to two factors, first, that pilocarpin promotes increased functional activity not only of the skin but of the whole gastrointestinal tract. In addition to this, Kolmer points out in his work on "Immunity and Specific Therapy," that it has been definitely shown by laboratory experiment that pilocarpin increases the antibody-forming capacity of every cell in the body; that is to say, raises the entire body resistance, and this is no small matter. I have therefore for years been devoted to this form of medication and I attribute to it the cure of many obscure ocular maladies that otherwise would have been without remedy.

Dr. George B. Wood: The therapeusis of the nose and throat varies a great deal with the individual specialist. I may be pardoned, therefore, if perhaps some statements based on my own experience seem somewhat dogmatic to some of my audience.

Acute suppurating tonsillitis, which is the proper term for the so-called "follicular" disease, showing clinically redness, swelling and exudate around the mouths of the crypts is characterized, pathologically, by destruction of the epithelial lining of the crypts and the formation of minute abscesses which starting in the germinating follicles rupture into the crypts. Hence local surface applications are of value chiefly in relieving pain and removing the accumulation of secretion from the throat. The patient should be confined to the bed or to the house according to the severity of the infection; the bowels opened with a calomel purge and a salicylate administered in rather large doses for from two to three days to neutralize the general toxemia. As local applications, a slightly alkaline throat wash with about 0.5 of a 1 per cent. carbolic acid used three or four times a day may be advantageous and if it can be easily done at home a 10 per cent. protargol solution painted on the tonsil every hour or so. Protargol possesses the quality of penetrating more deeply than any of the other silver solutions. When we see cases recover under some pet therapeusis we must remember that this disease is a self-limiting infection and that the majority of cases would recover without treatment in from two to three days. Of course there are many exceptions to this general rule and sometimes radical local applications are of undoubted value.

Concerning acute coryza I wish to enter a protest against the indiscriminate use of the nasal douche. The possibility of infecting the accessory sinuses or the middle ear is too great to justify the use of the douche because of the local relief which it sometimes gives. A weak solution of menthol and camphor in liquid petrolatum injected into the nostril with a medicine dropper will give almost as much comfort and is free from danger.

In the early stages of acute otitis media our chief object is to relieve pain and establish drainage through the eustachian tubes. For the relief of pain heat is most efficacious, either the hot water bottle or if this fail, syringing the ear with normal salt solution, hot enough to give the sense of burning and preferably administered by the fountain syringe. The auditory canal should be carefully dried out after the douche by a cotton wick and the ear protected from changes of temperature by some form of covering. Drainage through the eustachian tubes is accelerated by the contraction of the turbinals. This can be done by a weak solution of cocain used by the physician only, or by the instillation on the part of the patient of a 1:20,000 adrenalin solution plus five grains of antipyrin to the ounce into the nostrils every six to eight hours. If the disease progresses as manifested by continued congestion of the drum, persistent pain or continued elevation of temperature, paracentesis of the drum membrane should be done. I believe in the early incision of the drum. After discharge either following spontaneous rupture of the drum or paracentesis it is absolutely necessary to carry out strict asepsis. The use of a small cotton wick tipped with a 10 per cent. carbolized glycerin renewed as often as it is soiled by the discharge has given me the best results.

Dr. William A. Hitschler: In acute inflammation of the faucial and lingual tonsils strong solutions of silver nitrate, as advocated by Ballenger, seem to be of distinct service as a local application. The more marked the inflammation the stronger should be the solution. The strength should be not less than two drams to the ounce, although for the particular purpose this is a rather weak solution. Four to seven drams to the ounce will be found more satisfactory. The application should be made to the tonsils only and not to any surrounding tissue. The mucous membrane should be cleansed first and made as dry as possible. Caution: all excess of the solution should be drained from the applicator, that no silver nitrate of such strength reach the larynx. It would probably produce a laryngeal spasm.

In cases of severe deafness in which there is complete or almost complete loss of the drum membrane, together with loss of all or some of the ossicles, the application of an artificial membrane is occasionally of distinct service. The nerve, however, must not be unduly involved. The artificial membrane, which has been of remarkable benefit in a few cases, is a modification of the old cotton ball mentioned in the earlier editions of Politzer's work. Instead of using the cotton in the shape of a ball, it is flattened to correspond somewhat to the size and shape of the original drumhead. A small piece of silk or cotton thread is tied to the posterior-inferior margin to allow the patient to remove the cotton plug at will. The patient may be taught to introduce it himself. The cotton plug is moistened with different solutions, according to the measure of service. They may have to be varied from time to time. So far, I have used glycerin (with carbolic acid, ten or twenty grains to the ounce), boric acid solution, boric acid and alcohol, etc. The alcohol should be diluted.

There are a number of things in the technic of the application and the after treatment (some of them annoying obstacles) which cannot be entered into in detailed manner in this short discussion. But the extraordinary success met with in even the few cases justifies a trial of the method in every such case, ordinarily regarded as hopeless.

Dr. Frederick C. Hutton: When I decided to say a few words on the treatment of arthritis I was not aware that so many other speakers would discuss the same subject at this meeting. Dr. Reber has covered the field of rheumatoid arthritis and Dr. Good has mentioned his favorite method of treating arthritis deformans while still a third speaker has called our attention to the relief of gonorrheal arthritis.

I want to present a few cases of another form of joint disease, namely, osteo-arthritis, especially the hypertrophic form, and briefly outline a treatment which we have found very efficacious in these cases. When and when not to use electricity in treating arthritis will be governed entirely by the pathology of the joint. In the early stage of so-called rheumatism with redness, swelling, and severe pain, electrical modalities are contra-indicated, for, with the exception of the blue pencil discharge from a static machine, you will only aggravate the symptoms. After the acute condition has passed and we are confronted with the presence of inflammatory exudate and possibly bone changes, then our static sparks, wave currents, and high frequency applications find their field of usefulness.

Osteo-arthritis, as you know, occurs principally in elderly women, affects one or more of the larger joints and runs a chronic course. The patient complains of stiffness and soreness on motion while beneath the hand you can feel a grating sensation due to synovial thickening. On the Roentgen-ray plates exhibited, numerous bony projections or overgrowths involving the patella, both trocanters of the femur and the margin of the head of the tibia could be seen. In mild cases this condition can be noticed by an exaggeration of the natural angles of the bones about the joint while in severe types the bone proliferates to such an extent that it appears similar to a cauliflower in shape. The approximation of the ends of the long bones is the result of an absorption of the semilunar cartilages.

Of course we do not expect actually to cure these patients by absorbing the hypertrophied bone and restoring the joint to the normal, but we can relieve the pain and make these patients comfortable and finally reestablish a certain degree of the function of the joint.

In these cases a therapeutic lamp of three hundred candle power was applied for a period of fifteen minutes, and as close to the patient as they could tolerate; this radiant heat produces a dilatation of the peripheral vessels and engorges the part. While the joint is heated it is subjected to a vigorous sparking from a high frequency discharge using a wire-wound electrode and a spark about 2½ inches in length. The application of the glass vacuum electrode excited by the ordinary Tesla apparatus does not give the satisfactory results that are obtained when using the Oudin current in connection with a powerful static machine or high voltage transformer.

One thing must be borne in mind regarding the intensity of the treatment; start with mild doses and gradually increase the sparking distance. A severe application at the first sitting will only alarm the patient and accomplish nothing, and it ofttimes results in the patient objecting to subsequent visits. In the majority of cases it will be necessary to administer full doses about three times per week covering a period of three or four months.

Dr. J. Torrance Rugh: Two things have impressed me in listening to the details of therapeutic measures thus far; namely, the intense desire of the physician for those remedies which will give relief to his patients and the danger of losing sight of the cause of disease in his anxiety to afford relief from symptoms. However desirable it is to relieve suffering as quickly as possible, our province as physicians must spur us to seek for the causa ultima of the malady and direct our efforts toward its elimination. It is true that many trees will die when all the branches are removed but many others can only be killed by destroying the taproot.

My first contribution is for the relief of pain in certain old rheumatic joints. When the local tenderness and pain are in the tissues about the joint (extra-articular instead of intra-articular), a permanent or prolonged relief may be secured by injecting one grain of pure carbolic acid, dissolved in glycerin and water, sufficient quantity to make twenty-five minims. This is introduced deep into the tender area and the part thoroughly rubbed for a minute to force the solution into the surrounding tissues and prevent local necrosis. A second injection may be given on the same or succeeding day, but should not be repeated for five days because of the possible effect on the kidneys. The results are most gratifying both to patient and physician.

My second contribution is regarding the use of cocain for local anesthesia. Every now and then, a serious or fatal case of poisoning occurs from cocain. Nitroglycerin is the physiological antagonist of cocain and if used at the same time as the cocain, the toxic action will be completely prevented. If the cocain is applied to a surface, the nitroglycerin (two or three drops of a 1 per cent. solution) should be given by mouth. If the cocain is injected into a part, the nitroglycerin should be injected with it, one, two or three drops being added to each half or three-quarters grain of cocain in solution. I always feel safe in using cocain under these conditions and have not seen a case of poisoning since I have been using the nitroglycerin in conjunction with it.

My third contribution is for the control of green pus (bacillus pyocyaneus) infection. While this type of infection is not as immediately serious as many others, yet it may prove extremely dangerous. I know of no antiseptic which will so efficiently destroy these germs as will formalin. The wound should be irrigated with a 1 : 500 (or stronger) solution and if the suppurating area is open, the dressings should be kept moist with the solution. The action of formaldehyd is as nearly a specific in this type of infection as one will see in surgery.

Dr. T. Turner Thomas: I am asked to tell of the work I have been trying to do on the shoulder joint. In 1907, in a case of traumatic brachial paralysis with ankylosis of the shoulder, following an injury a year and a half before, I broke up the ankylosis under ether and had the patient use forced exercises until he had normal motion in the shoulder joint. In In about three months he had normal power in the whole limb and has had it since. This was followed by many similar cases. In 1909, in a more severe case of traumatic brachial paralysis with flail shoulder joint given to me by Dr. J. Chalmers DaCosta, by operation I fixed the shoulder joint firmly in its normal relations, and afterward removed the operative stiffness by forced exercises. In about four months the patient had a normal arm and has had it since. I have now had twelve similar cases, ten operated on with similar results. It is not likely that anybody would ascribe any of these cases to injury of the brachial plexus, which seems to have been the cause usually assigned in such cases. In 1910, in a boy, 7½ years old, with a brachial birth palsy, I found a hitherto undiscovered posterior subluxation of the shoulder joint. A complete paralysis at birth had disappeared but the limb was still much crippled by the shoulder joint displacement. Operative reduction was not completely successful, but gave very much better function to the limb. An experience, now, with about twenty-five cases, leads me to the conclusion that most obstetrical paralyses of the upper extremity are pseudopalsies due to injury of the shoulder joint, not of the brachial plexus. In 1908, I contracted by sutures the axillary portion of the shoulder capsule for a recurrent dislocation of the shoulder. The patient soon had normal motion and power, and has never had a dislocation since. Of from twenty-five to thirty such cases operated on, I have had only two failures, both in epileptics with particularly powerful convulsions. In seven other epileptics, there have been no dislocations since operation. For old unreduced dislocations of the shoulder, the rule of the late Dr. J. William White was to attempt reduction up to three months, not later. This interval has been reduced by most surgeons, in favor of earlier operation. I have reduced without operation one case after eight months, one after four months and others after shorter intervals. In a recent case of ten weeks' standing, a preliminary breaking up of resisting contracted portions of capsule made the reduction very easy. A similar result was obtained by the same method in a case three weeks old. In one of the two failures in recurrent dislocations from operation, I excised the humeral head by an improved method. The classical method is to saw off at the surgical neck, thus removing the attachments of the subscapularis, supra- and infraspinati, and teres minor, and dissecting the long head of the biceps out of its groove. I sawed through the anatomical neck and did not disturb any of these attachments except that of the subscapularis which reattached itself in its normal position. In two cases of fracture dislocation of the humeral head, by operation, I have easily reduced the dislocation and nailed the fragments in good position, with good after-results.

Dr. A. C. Morgan in a letter contributed the following: I have had a case of leukoplakia buccalis under my care for the past ten years, the patient being a woman, now 45 years of age and going through the menopause. During these ten years all of the usual, and some of the unusual, drugs in the treatment of this affection have been tried out by me, but without avail. Three months ago I conceived the idea of using emetin, hypodermatically and used one tube of ⅓-grain strength tablets (ten doses). The patient showed improvement after five had been used and at one time went for two weeks without an ulcer, for the first time since the trouble had started. Since the first treatment the patient has had fewer ulcers, with lessened severity than before. I have now started on a second series of ten tablets of ½-grain strength. I present this as my contribution for the evening in the hope that others may try out this drug to relieve the great distress that attends the affection.

William Ruoff, Secretary.

WILLS HOSPITAL OPHTHALMIC SOCIETY

Meeting of Nov. 14, 1916

Dr. William Campbell Posey showed the following cases:

1. An unusually large mucocele of the frontal cells which had simulated an osteoma of the right orbit. Drainage had been effected by a long incision under the brow, perforation from the frontal cells into the nose, and the insertion of a large caliber drainage tube from the sinus into the nose. The development of the mucocele had been gradual over a period of nine years, had been unattended with pain or other inflammatory phenomena, and notwithstanding a high degree of downward and outward displacement of the globe, vision had not been lowered.

2. Prelacrimal tumor in a young colored woman, from enlargement and disease of the anterior ethmoidal cells. A cure had been effected by orbital incision and drainage of the cells into the nose by breaking through the ethmoid plate and inserting a large drainage tube. Dr. Posey said it was his usual custom to close the orbital wound in cases of this nature, permitting the sinus to drain directly into the nose, but this rule had not been followed in either of the cases just referred to, on account of the great amount of mucous discharge in the first case and the amount of inflammatory reaction in the orbit in the second case.

3. A baby, 8 months old, had congenital ptosis and lack of upward rotation of the eyes, with associated marked dilatation of the veins in the skin of the upper lids, more especially on the left side. There were no vascular changes elsewhere about the eyes and nothing in the history which gave a clue to the origin of the venous swelling.

4. A case of monocular tubercular interstitial keratitis in a young girl, which had progressed most favorably under increasing doses of old tuberculin, administered hypodermatically.

5. A case of monocular interstitial keratitis in a young man apparently due to acquired syphilis. Marked improvement followed the use of mercurial inunctions.

6. A case of iridocyclitis following perforating injury through the ciliary body by a stone. Enucleation advised.

7. Another similar case, the ciliary body having been perforated by a hat-pin.

8. A case of intense uveitis with corneal infiltration in an 11-year-old girl with vaginitis of eight months' standing. The ocular involvement was thought to be due to metastasis.

9. Blepharoplasty in a girl, 22 years old, for the restoration of the upper lid, which had been lost from orbital inflammation in childhood. The flap which was taken from the forehead included a small portion of the brow, with the view to creating a row of cilia on the new lid. A mucous lining was provided by carefully dissecting the small remnant of mucous membrane which was confluent with the skin underneath the brow, reflecting it downward and sewing it temporarily to the lower lid. Union had been prompt and Dr. Posey said it was his intention to remove the phthisical globe, to place a gold ball into Tenon's capsule, and later to insert an artificial eye. Naturally, the artificial cilia would not be tolerated by a healthy eye on account of the continued irritation to which they might give rise, but he thought a judicious penciling of the row of hairs fringing the flap might add considerably to the setting of the artificial eye. He had deferred the removal of the phthisical eye until the new lid had been properly formed, on account of the support it gave the flap.

Case of Congenital Anomaly of the Optic Nerve and Choroid. Dr. Zentmayer presented the patient, a woman 35 years of age, who stated that her vision had always been defective, especially in right eye. In this eye there were two large wingshaped areas of defective choroid which spread out from optic nerve to temporal and nasal parts of fundus. Defect in choroid was complete. The papilla was oval and presented at the scleral ring on temporal side a porous opticus through which the retinal vessels emerged. M. = 8 D. In left eye the choroidal defect was much less extensive and not complete, the choroidal vessels being present and showing, in places, sclerosis. M. = 3 D. The right eye was divergent, but this had been almost corrected by an O'Connor advancement of the internal rectus.

Opacity of Both Lenses with Diabetes. Dr. S. D. Risley presented for study a man, aged 40, with an apparently soft and flocculent opacity of both lenses. When admitted to the wards ten days earlier opacity was complete and lenses swollen, but projection was good in all parts of the field. While in the hospital the swelling had markedly subsided and much of the anterior cortex had cleared, leaving a clear space behind the border of the dilated pupils. He had been brought for extraction of his cataracts, by his physician, Dr. Lavas, who reported that the man had been under his care for diabetes but that the percentage of sugar had been so far reduced he believed an operation advisable. Examination, however, by the house staff revealed a high percentage of sugar and the urine had a specific gravity of 1.042. This had not diminished under treatment and restricted diet in the hospital. During the preceding twenty-four hours the man had passed 2½ gallons of urine of a specific gravity 1.036, with 3 per cent. sugar. The pathologist reported "No acetone, diacetic or oxybutyric acid, no albumin or casts."

It is possible that there may be some relationship between the obvious clearing of anterior cortex of the lens and diminished swelling, and the evacuation of such an enormous quantity of sugar in the urine. The case stands alone in Dr. Risley's experience, not only in the clearing of the lens cortex but in the excessive amount of urine passed in twenty-four hours so heavily laden with sugar. Prognosis in the extraction of cataract in diabetic patients is on the whole favorable. Dr. Risley reported that he had had four such patients in the house at the same time a few years ago, all of whom did well after extraction and pursued a quite normal convalescence. He felt it important, however, that diabetes should be regarded as a disease of impaired metabolism; that the uveal tract on which the cataract depended was a local manifestation of the general disorder and should be treated accordingly. The case he had shown was the first in which he was ready to believe that the presence of sugar was primarily the cause of opacity of the crystalline lens. The anterior ciliary vessels were not engorged, nor were there any other demonstrable symptoms of uveal disease.

Dr. S. D. Risley presented from the wards a bright girl, aged 7 years, assigned to his clinic on Oct. 30, 1916, suffering from distressing photophobia and lacrimation in left eye, the right being healthy with vision = 6/vi, T. = 20 mm. The tonometer reading in left eye showed apparently 57 mm. + 2, estimated by palpation. Cornea in both eyes was very large but, in the left, the anterior sclera was apparently distended and showed engorgement of the anterior ciliary vessels characteristic of increased tension of the globe. Eyes were not painful and there had been no headache. The condition was recent, the child having attended school in a grade beyond her age until three weeks before. On the cornea in lower nasal quadrant, just below the corneal pole, there was a break in the epithelium presenting much the appearance of dendritic keratitis. The break was 1 mm. wide and 3½ mm. approximately long, extending from near corneal pole downward and inward. There was what appeared as a deposit of discrete spots on the membrane of Descemet, but not so dense as to prevent a study of the fundus with the electric ophthalmoscope, which showed a deep glaucomatous cupping of the optic nerve and a choroidal disturbance increasing in severity at the periphery of the ophthalmoscopic field.

She received internally one grain of quinin sulphate four times daily, and locally an alkaline lotion and eserin salicylate four times daily. Two days later the photophobia had disappeared and the break in the corneal epithelium could be discovered only as a faint gray line by oblique illumination, but just above it, to the nasal side, a kidney-shaped area 1 mm. by 2 mm. in size, seen only by favorable illumination, appeared to be an opening or break in the membrane of Descemet, which appeared faintly gray around it, the discrete deposit on its surface having disappeared. Dr. Risley regarded the case as one of buphthalmus or juvenile glaucoma. Child was then admitted to the ward and treatment continued, with marked improvement in ciliary engorgement, while tension had fallen to normal as estimated by palpation. Dr. Risley commented on the untrustworthy reading of the Schötz tonometer in such a case. The curvature of the much-enlarged cornea did not conform to that of the instrument and therefore the spud could not be pressed home. Dr. Risley has advised a broad peripheral iridectomy which he purposed doing soon at a favorable stage of the disease, and felt that without an iridectomy his full duty would not be done to the case.

Case of Purulent Ophthalmia with Vaginitis. Rr. S. D. Risley thought that since the infection of the eye had begun as a côrneal ulcer, with subsequent involvement of a conjunctival sac, the infection was in all probability direct rather than metastatic.

Dr. S. D. Risley presented for study a patient for whom he had enucleated the left eye and inserted a gold globe in the capsule of Bonnet. The point of interest was the technic of the procedure. After separating the conjunctiva from the globe, the tendon of each of the four recti was in turn seized through conjunctival and subconjunctival tissue in grip of strong forceps, the tendon severed from its attachment to the globe and a deep stitch introduced and held back by an assistant. After enucleating the ball a gold globe was inserted and the sutures closely drawn and tied at the center; a conformer was then introduced and bandaged. The only event of interest in the convalescence was a marked chemosis of conjunctiva which disappeared after removal of the conformer. The result was a freely moving, prominent stump instead of the empty socket usual after ordinary enucleation.

Dr. Risley exhibited also a man on whom he had done a Mule's operation in 1898. Patient still had a perfectly healthy, freely movable stump. There was apparently no tendency for the escape of the glass ball, which had then been inserted, and no evidence of thinning of the sclerotic over it.

Dr. P. N. K. Schwenk reported the following case of supposed glaucoma, in which he had done a posterior sclerotomy, iridectomy, lens extraction and capsulotomy, with full restoration of vision with correcting glasses: Mrs. M. S., colored, aged 50 years, came to Wills Hospital May 15, 1915, with the history that six weeks before she was confined to bed with "La Grippe," when she suddenly lost the sight of right eye, followed in two weeks by same condition in left. The patient presented the following on first visit: Eyes slightly divergent, O. S. orbital axis fixation, cornea clear, pupils slightly dilated, sluggish reaction to direct light, lenses cataractous, whitish in appearance. Right eye, pericorneal zone, deep scleral injection, vessels enlarged, T. + 2, no light projection or candle field, no fundus reflex.

I put patient off until conditions became necessary to relieve tension and pain. In consultation with Dr. Fisher who advised posterior sclerectomy, I admitted her to the wards on May 29, and did a posterior sclerotomy on June 8, followed two days later by an iridectomỳ—discharged her on June 29 with eserin and salicylates. On October 12, I readmitted her and did a lens extraction on October 14. To our surprise she began having light projection and enlarged candle field. On October 29, I did a capsulotomy. Patient now has a 6/5 mostly, with a + 10 = 1 cy. ax. 30. This case is instructive from two viewpoints: The case presenting all the evidences of glaucoma and hopeless as far as improvement of vision is concerned, but because of some pain with tension plus, was admitted to relieve these symptoms, which led to further indications to produce a clear field, or better study of interior of eye. The tendency or temptation was not to interfere, as the case seemed hopeless. The second point is the beneficial results obtained by posterior sclerotomy in a large percentage of cases in glaucoma before doing iridectomy. In three cases I have done sclerotomy, iridectomy and lens extraction at the same time. In my experience, posterior sclerotomy with iridectomy with upward incision, is the operation of choice. The Elliott operation should be performed only in cases of necessity or blind eyes.

Dr. Burton Chance presented, because of confusion in diagnosis, the case of a negress of about 35, who had been under Dr. Fisher's care fifteen years ago, when, besides symptoms of neuroretinitis, there was proptosis which was believed to be caused by orbital tumor or cellulitis. Symptoms were alarming, and corneas, especially the right, became more or less necrosed by exposure incident to protrusion of the globes. Large doses of iodids were believed to have allayed symptoms and reduced protrusion. Patient continued without symptoms until early in October of this year when, in addition to protrusion of globes accompanied by immobility, there was enormous chemosis, and the patient was practically blind when she came under Dr. Chance's care. Chemosis was so great and corneas so cloudy that it was impossible to view the eye-grounds. There was a moderate yellowish conjunctival discharge. From October 17 this discharge has contained the pneumococcus organism abundantly, which can be demonstrated by smears and by cultures. Roentgenograms disclose no involvement of adjacent sinuses, and nothing indicative of neoplasms of the orbits have shown. Wassermann reactions were, repeatedly, negative. The refraction, which is myopic, gives a quite high result at 4 m. The discharge is watery. The chemosis has entirely subsided and movements of the globes have returned. Treatment has been that of rest in bed, cold compresses, inunctions of iodid of mercury in ascending strengths, over entire period. Dr. Chance does not regard it a case of gumma of the orbit. It would be singular to have the two orbits affected alike, and to the same degree, and there should not, of necessity, be such chemosis accompanied by pneumococcic organisms. He therefore is inclined to the belief that he has had to deal with an extreme case of conjunctivitis complicated by infiltration of the orbital tissues.

Dr. Chance also presented a case of lacerated wounds of the eyelids and cornea, which had received primary treatment elsewhere. A negro man of about 22, while asleep, had been assaulted by a companion, who broke a small glass dish over his face. The lids, to the outer side of each punctum, were lacerated quite completely, in a line extending from brow and lower orbital margin, which severed the lacrimal canals. The cornea also had a clean linear wound, which had become entirely united and the healing well advanced. The line of laceration was evenly curved. At the present time, the third week, the healing is complete but distinct ectropion of the lower lid is present, with annoying epiphora. Dr. Chance intends to tunnel a new passage for the tears as soon as he believes cicatricial contraction has become complete.

Harold W. How, Secretary.

Let every member be present at the next meeting of his county society. Select good men for officers, pay 1917 dues, take a vow to help move things along, and make organized medicine the power for good that it should be.

COUNTY SOCIETY REPORTS

BERKS—NOVEMBER

At the November meeting of the Berks County Society, Dr. F. W. Knoll reported a case of multiple abscess of the liver; diagnosis doubtful but verified at necropsy.

Dr. Martin Gruver reported "A Case of Mitral Regurgitation with Especial Reference to Diagnosis." Mr. F. W., aged 52; weight, 165; height, 6 feet and 3 inches; yardmaster for railroad company for twenty years. Habits: Tobacco used moderately; alcohol negative. He was married and father of one child living. Patient has always been healthy excepting an accident eight years ago, in which he fractured a patella which was wired at Reading Hospital, with good results. He then returned to his position which he held until 1913, when he noticed a soreness of a stitch-like character over cardiac area which was soon followed by dyspnea and cardiac palpitation. This condition progressed to the point where he was forced to resign his position one month after the appearance of first symptom. He was placed in a leading hospital of Philadelphia where he remained three weeks. His hospital report showed a slight elevation of temperature and a slight increase in leukocytes and a diagnosis of mitral regurgitation; discharged from hospital with some improvement. Arriving in Reading he was placed in the hands of a physician under whose care he remained for two and a half years. He then placed himself in the hands of a chiropractor who gave him treatments over region of spine, which aggravated his condition to the extent that he became very irrational at times. This treatment was stopped March 4, 1916, when I first saw the patient.

He was found in bed in a semirecumbent position with marked cyanotic and anxious expression, dyspneic, coughing and expectorating brown-tinged mucus. On physical examination I found edema of legs, considerable fluid in the abdomen, and clubbed fingers; enlarged dilated heart with extrasystoles and murmur at apex transmitted to axilla; also enlargement of the liver and many râles over lungs, the râles being so numerous that second pulmonic sound was practically inaudible; tonsils normal, uvula edematous, gingivitis and pyorrhea; urine negative; Wassermann negative. Blood count showed a slight secondary anemia.

Patient was placed at rest and all efforts directed toward removing the fluid by stimulating all the excretory organs. After these were working well a cardiac stimulant was administered. The fluid gradually disappeared, the heart tone improved and the heart gradually recovered from its dilated condition. The patient improved to the point where it was safe to attempt to remove the cause of his condition, which I thought might be the teeth. In July he was sent to a dentist who advised removal of several teeth. Four were removed, mostly molars; on the roots of all four were found large pus sacs which the dentist said may have been there for several years and acted as a source of infection and constant intoxication. On further examination the dentist advised extraction of all his teeth which was done at different intervals. The patient began to gain in weight and strength immediately and returned to the railroad company and received a light position. He has gained 30 pounds since August 1.

This case substantiates the fact that many cardiac cases which seem to be hopeless at first sight have a definite etiology which may be remote from the heart and caused by infection from teeth, tonsils, sinuses or some constitutional condition, as syphilis, etc., which when discovered and removed goes a great way in halting the progress of the disease and prolonging the life of the patient. The prognosis in this case is guarded in that the lesion in mitral valve is still present and a rupture of compensation may develop on overexertion.

Dr. S. J. Sondheim reported a case of gonorrheal arthritis. A girl was seized suddenly with agonizing pain. Temperature was 100 F.; pulse, 110. History was negative. Vaginal discharge four months previously was dull purplish-red with pain down legs and thighs. Chest and abdomen were normal. Treatment: Buck's extension to knee; pain out of proportion to change in joint. Neisser's vaccine was used; 50 million were injected, increased in seven days to 100 million and again in ten days to 200 million, until six or eight injections had been given. First get negative phase, later positive. Time for next injection is after the positive phase. If there is any rise of temperature or secondary results, then reduce the amount of vaccines. Infection in a joint may occur at any time, even after an apparent cure. Use plaster cast or Buck's extension; also counter irritation. In chronic form with fibrous exudate use salicylates and syrupus ferri iodidi.

Dr. Shearer, in discussing, said every case of appendicitis should be operated on in forty-eight hours. Also that in spite of the intensive studies made of carcinoma we know no more about it than we did six years ago. While primarily a local disease it later becomes constitutional. During the precancerous stage there is a natural immunity. The average case is treated one year before it comes to the surgeon. Fifty per cent. of uterine cancers are operated on too late. Nature tries to block the avenues of absorption; 40 per cent. of cancers of sigmoid have no metastasis.

Dr. Stites emphasized the importance of a careful diagnosis.

Dr. Lytle cited a case in which the patient suffered from an attack of severe pain in the appendiceal region, repeatedly, yet an exploratory incision failed to show anything abnormal.

Dr. Henry cited a case diagnosed as appendicitis for which a gangrenous appendix was removed; later the necropsy showed multiple abscesses of the liver.

Dr. Livingood emphasized the importance of aspiration in joint disease; the needle is easy to carry and enables one to ascertain the condition.

Clara Shetter-Keiser, Reporter.

CARBON—OCTOBER

At the October meeting of the Carbon County Society Dr. Joseph J. Bellas reported the following case: Male infant, aged 2 months, had not been well since birth, but no physician was called. At that time the father was being treated for diphtheria. Three weeks later a brother died, aged 2½ years; the diagnosis was made of anterior poliomyelitis. On October 16, I was called in to attend the child; the chief complaint was colic, swelling of the feet, abdomen and scrotum. Physical examination was as follows: Edema of both feet and calves of legs; abdomen distended with fluid; appearance pale and waxy; heart sounds normal; temperature 99.5 F.; pulse 98; respiration 20. A urine examination was made with the following results: color, amber; odor, aromatic; reaction, acid; specific gravity, 1.010; albumin, negative; sugar, marked. Microscopic examination revealed a few long hyaline and granular casts, a few urates and renal epithelium, no blood cells. A diagnosis was made of glomerular nephritis and diabetes mellitus.

Due to a suspicion of its being specific, the patient was placed on the following treatment: Gray powder, 1 grain three times a day; tinctura opii camphorata, 10 drops every three hours; sodium bicarbonate, 10 grains three times a day, and mercury inunctions continuous in the form of unguentum hydrargyri dilutum, 10 per cent. On October 24, the edema was increased, urinary output diminished and a systolic murmur heard at apex, probably mitral regurgitation. Three urinary examinations were made, showing a slight diminution in the amount of sugar. On October 25 the patient died in uremia.

J. A. Trexler, Reporter.

DAUPHIN—NOVEMBER

The Dauphin County Society met in the lecture hall of the Harrisburg Academy of Medicine, November 6, with President Kilgore in the chair.

Dr. J. Torrence Rugh of Philadelphia lectured on "Treatment of Joint Infections." Dr. Rugh left nothing for the listener to surmise, but very clearly gave the treatments in their minutest details, something rarely done by lecturers. There were so many good points given that we shall have to be satisfied with a few of the exceptionally interesting ones. During the acute stage fixation of the joint is the best treatment. After the acute stage has subsided massage will be of aid if judiciously applied. Passive movements are not to be used until there is a certainty that all foci have cleared up. When a joint is septic and filled with pus the pus should be withdrawn with a suction syringe. In old cases bandaging will benefit. Among external applications and internal medication Dr. Rugh mentioned tincture of iodin in small doses in water and guaiacol. Thymus gland is useful where metabolic changes are taking place. Alternate heat and cold over a period of ten minutes will accomplish much because of the alternate constricting and relaxing of the blood vessels. For chronic arthritis a 25 per cent. solution of phenol crystals in equal parts of glycerin and water, reduced by taking four drops of the solution and adding to it twenty-four drops distilled water which will give one grain phenol to the dose. This is to be injected into the tissue surrounding the painful joint and repeated in twenty-four hours and then, if necessary, again in five days. This in Dr. Rugh's hands has given excellent results.

The fact which Dr. Rugh wished to impress on the minds of the physicians was the advisability of finding the seat of infection which brings about the painful joints. He cited several striking instances where the cause for the joint trouble lay in some remote part of the body, which was entirely overlooked in searching for the cause. One instance was where a dentist had declared the teeth of the patient in excellent condition, without a cavity or any other evidences of disease but where a roentgenogram showed pus sacs located around the roots of several teeth which were proved to have been the cause of the trouble by the fact that after the offending teeth had been drawn the joints affected cleared up. Another case of remote pus pockets was seen in a patient who had arthritic trouble for which no cause could be found. The patient had artificial teeth above and below with the gums showing a normal state and it was thought impossible for the trouble to originate from this seat, but as no other focal infection could be found a roentgenogram was taken and several hidden roots with pus pockets were shown. After these were removed the joint trouble disappeared. Other conditions producing arthritis are diseased tonsils, frontal, ethmoidal, sphenoidal and maxillary sinusitis, gallbladder infections, chronic appendicitis, etc. Dr. Rugh emphasized the importance of diagnosing the condition by finding the cause however remote it may be from the seat of symptoms. Do not be satisfied with treating the symptoms but search more extensively so that the cause may be treated and the symptoms relieved thereby.

H. HERSHEY FARNSLER, Reporter.

DELAWARE—NOVEMBER

The Delaware County Society met November 16 at 3:30 p. m., at the Chester Hospital. The meeting was well attended and much interesting discussion was brought forth.

Dr. George B. Sickel read a paper on "Some Problems of Industrial Accident Work." The author believes that the question of whether the employee is entitled to compensation and the length of time it should be paid, is, in the majority of cases, a medical question and should be decided by medical men. In regard to the hernia problem he referred to twelve claims filed with the Compensation Bureau up to Aug. 5, 1916. In the six allowed compensation no medical testimony seems to have been given, but apparently employers admitted that ruptures were caused by injuries; in all six claims refused, refusal was based on medical testimony that the injury did not produce the hernia.

As a result of defects at birth there may be a congenital hernia. A man having this anatomic defect may be hired and may develop his hernia, as he thinks, from lifting, etc. It is impossible to conceive that a hernial sac can suddenly be caused by lifting, straining, etc. The sac is a preexisting defect and simply awaits the occupation of it by the bowel.

With the fetal development perfect, we have to deal with the acquired hernias. The descent of the testicle has left a weak spot in the abdominal walls, the inguinal canal. The two essential parts of a hernia are the sac and its contents. The sac consists of peritoneum. For the peritoneum to become stretched to such an extent requires months or years of assaults. The examination of the external abdominal rings by inverting the scrotal skin with the finger will reveal, in a good percentage of men, open rings, so that one can often introduce one or more fingers into the ring. This condition is due to faulty development and repeated assaults on the peritoneum over the abdominal rings will result in the formation of a hernial sac. Men who do hard work develop strong abdominal muscles, and are as relatively free from hernia as men in the sedentary occupations, according to very reliable observers. It is the repeated pressure by various acts which one performs a hundred and thousand times a day which gradually forms a hernial sac. Then, at the psychological moment, the hernia comes down, and it is attributed to the immediately preceding act, be it heavy or light work. True traumatic hernias are usually direct hernias. A hernia that has a well-developed sac is not really a traumatic hernia. In the opinion of Charles Mayo, when the hernial sac is large, tough and consists of fibrous bands, it is proof positive that the hernia is an old one. A sac bound down with adhesions bears mute testimony that it is an old condition.

Regarding sickness versus accidents, two cases were cited which showed that there are numerous cases which are purely medical in nature, but which often are attributed to injury. It is surprising what conditions the patients will regard as resulting from injury: hemorrhoids, hemorrhage, acute dilatation of heart, rupture of aneurysms, gastric ulcer, appendicitis, biliary or intestinal colic, nephritis, joint or bone tuberculosis, inflamed bunions, ingrowing toenails, purulent conjunctivitis, rheumatic iritis, phlyctenular disease, amblyopia, varicose veins, etc. Some of these conditions can be caused, or at least aggravated by injury. Insofar as our Compensation Act is concerned, aggravation of any existing disease by an injury is compensable, just as are the direct results of injury. But there are cases in which there is no causal relation between the disease and the alleged injury. Many so-called rheumatic conditions arising from the absorption of bacterial toxins from some local source of infection, are attributed to injury. Should this belief be allowed to become accepted as true or should the public be educated that diseased tonsils, pyorrhea, etc., are more often the cause of such conditions? There are many cases, no doubt, in which it is difficult to say with certainty that an alleged injury is or is not the cause of a given condition. But in many cases the medical testimony will be valuable in arriving at a just conclusion.

Many of the members of the society are engaged more or less actively in the various industrial plans within a radius of 5 miles of Chester. Much discussion followed Dr. Sickel's paper on the subject of hernia. At one plant in the last two years, of 4,000 men examined (Italian laborers), 20 per cent. wore tight belts and had hernias. In another industrial plant 10 per cent. of the men employed had weak abdominal rings and after one year's time not one case of traumatic hernia was found or recorded. Another matter which caused much well-earned discussion was the subject of too much first-aid medical practice by male nurses (and female occasionally), orderlies, dispensary employees and others, in many of the various industrial plants in the county. Many cases were recalled where treatment was prolonged from a few days to weeks. This sounds like the regular practice of medicine as we understand it. Such practice was severely censured by the members present.

Dr. J. Chalmers Lyons read a paper on "Treatment of Acute Anilin Poisoning, and Also Its Various Derivations Incident to Its Manufacture," which will appear in a subsequent issue of the Journal.

WALTER E. EGBERT, Reporter.

ERIE—DECEMBER

The December meeting of the Erie County Society was held in the Public Library Building with President Roth presiding.

Dr. Robert Osgood of Boston, orthopedic surgeon to Massachusetts General Hospital, and associate in orthopedic surgery at Harvard, addressed the society on "Foot Strain and Flat-Foot." He reviewed briefly the anatomy of the foot and ankle joint and the mechanics of weight-bearing as applied to the lower extremity. Among the points brought out were the following: No foot strain occurs at the midtarsal joint but nearly always begins in the region of the calcaneo-astragaloid joint. Of the three sources of foot control, bony, ligamentous and muscular, the mechanism of the last named is the most important since the bony arch being without a keystone cannot support even itself without assistance, and the ligamentous arch is essentially plastic, not elastic. In the muscular control, the flexor longus hallucis and its tendon play the most important part. The objective symptoms of a case of possible foot strain outweigh in importance, the subjective symptoms. Points of tenderness are to be dilligently sought for, keeping in mind that bone tenderness seldom indicates foot strain. A prolific source of foot strain is faulty shoeing.

Dr. Osgood described his method of testing the muscle balance of the foot, and graded exercises for bringing as nearly as possible to normal the disturbed equilibrium in foot strain. He introduced interesting lantern slide pictures and finished with a short résumé of the most important surgical procedures used in this specialty at the present time.

T. M. M. Flynn, Reporter.

FRANKLIN—NOVEMBER

The Society of Franklin County met in the Court House, November 21, with President Swan in the chair.

Dr. John W. Croft read a paper on "Chronic Appendicitis," in the treatment of which he used the high frequency current in the strength of 500 to 800 amperes. In all cases in which he used this form of treatment permanent relief was secured. Eight cases were thus regularly treated and there has been no return of the condition. He related several cases of chronic gonorrheal rheumatism treated in the same way with remarkable effect and with apparent cure. A number of these cases both of the chronic appendicitis and rheumatism have a history of several years, with entire relief.

Dr. John J. Coffman detailed two cases of hysterical paralysis. In each case the entire right side, except the head or face, was affected. The power of both upper and lower limbs was completely lost. Stupor also showed markedly in one case. Under rest, quiet, baths and bromid treatment the patients were relieved, although both were affected for two or three weeks before they regained their normal condition. It is quite important that a condition of this nature be considered in making a diagnosis so that a differentiation may be made in cases of paralysis.

John J. Coffman, Reporter.

PHILADELPHIA—NOVEMBER

The Philadelphia County Society met November 22, at 8:30 p. m., with President McLean in the chair.

"The Legal Aspect of the Drug Habit Problem" was given by Francis Fisher Kane, Esq. I want to call attention to certain provisions in the Harrison Law and to two or three decisions of the courts in which these provisions have been construed, then speak of the state bill proposed by the Philadelphia Narcotic Drug Committee and suggest additional requirements for incorporation into the bill. Observing the "selling" provision of the Act it is seen that while Congress does not specifically say that the physician shall be guilty of offense if he sells or gives away the drugs to an addict to gratify the appetite, yet careful reading of the section shows this to be the intent. The phrase "in the course of his professional practice only," can have but one meaning.

Three cases are cited in which the language of the provision has been interpreted. In one arising in the Court for the Southern District of Ohio, a bill in equity had been filed to restrain the internal revenue officers from enforcing the law against doctors doing a mail order business, attempting to prescribe for patients at a distance, sending out preparations containing cocain. After a careful analysis of the Act and a review of the regulations of the commissioner, Judge Sater says that physicians who register and pay the tax may only under certain conditions prescribe the particular drugs in the treatment of their patients and that Congress has indicated in "unmistakable language" that the practice of the doctor "must be legitimate and professional." In a case arising in the Northern District of New York, Judge Ray decided that a physician who issues a prescription for drugs in an amount so large as to be utterly unreasonable, is guilty of an offense under the law; also, that the dealer filling such prescription is likewise guilty. In the Eastern District of Pennsylvania the prosecution in a case was against a physician under this same selling provision of the Act and the court ruled favorably to the government on the words "in the course of his professional practice only."

One question arising under the "selling" section of the Act is whether a doctor may not be said to "sell," even though the only part played by him is the writing of a prescription coupled with the receipt of money. In a Virginia case the judge said that prescribing was the same as selling or dispensing. In a regulation issued by the Commissioner of Internal Revenue it was stated that for the purposes of the Act generally, prescribing, dispensing and distributing are synonymous terms. Regarding the responsibility of the druggist in these cases it is contended that he is protected by the mere presentation of a prescription. The government, of course, contends that the druggist is not so protected. The Harrison Act had to be drawn as a revenue measure in order that it might be constitutional and enforceable by the courts, Congress not having power to legislate directly for the purpose of safeguarding the health and morals of the public. Certain of the provisions are being attacked on constitutional grounds as well as the government's interpretation of them. We of the government knowing the seriousness of the drug evil hope that the state legislatures will by stringent state laws safeguard the health and morals of the people. With the knowledge that in Pennsylvania there is no effective legislation regarding morphin and other products of opium, the Philadelphia Narcotic Drug Committee has had a bill drawn which it hopes will be approved by your society. It is printed in the report of the committee and can be had from Dr. John H. W. Rhein. The bill was drafted by Pierce Archer, Jr., whose endeavor has been to fill up the serious omissions necessitated in the Harrison Act by reason of constitutional limitations imposed by Congress. The state courts are given direct control of the "possessor" who has got his drugs through illegitimate channels.

Ought we not to expect from the provision of the Act such "an habitual user" as the morphin addict, who, suffering from a chronic or incurable disease, needs the drug quite as much because of the disease as because of his habit? Would it not be well to allow the doctor to frank the prescription, and permit it to be filled as often as may be necessary, provided the case be reported to the board of health, as any other addict? The provision would meet a class of cases comprising the aged and impecunious to be provided for in any intelligent scheme of legislation. There should be also the regulation of the sale of the hypodermic syringe and of the indiscriminate sale of paregoric. This indiscriminate sale of paregoric cannot be prevented so long as compounds containing not more than two grains of opium to the fluid ounce may be sold without a doctor's authority.

The abrupt withdrawal method employed by Dr. Frederick C. Baldi at Moyamensing Prison seemed to me to justify itself ten times over while our federal prisoners were in his hands. While the men and women said their sufferings were very great in many instances they afterward expressed their gratitude for what had been done for them.

"Relative Infrequency of the Habit Among the Middle and Upper Classes; Treatment and Final Results," was given by Dr. F. X. Dercum. Long before the enactment of the Harrison Act there had been a marked diminution in the number of users of drugs in the middle and upper classes. This I attribute largely to the influence of physicians, their indirect education of the community and the general educational movement in public schools and through the press. Physicians of a generation ago were more prone to resort to hypodermic injections for the relief of symptoms than are physicians today. Detection of drug habits is not as a rule difficult. If a hypodermic injection is absolutely necessary today it is usually combined with scopolamin hydrobromate and a much smaller dose of morphin is required, thus greatly lessening the danger of establishing the habit. Occasionally I have noted that a patient would make use of cocain to correct the effects of morphin, and in addition use alcohol to overcome the general depressing effects, in this way acquiring the so-called triple habit. I believe the Harrison Act has been especially effective in reaching the poor, the hospital and the dependent classes, especially the degenerate and criminal classes of the tenderloin. That it also protects the drug inebriates of the middle and upper classes there can be no doubt.

In the treatment of all classes of cases, so far as possible, a physiological method of living should be instituted. The drug should be withdrawn rapidly when the general condition of the patient permits it; more gradually if there be grave impairment of the health. In every instance elimination should be stimulated as much as possible, and in the rapid withdrawal of morphin brisk saline cathartics should be employed. Permanency of cure depends largely on the subsequent life of the individual; this should be physiological with abundant hours of rest, abundant food, proportionate exercise in the open air and above all wholesome occupation. There should be borne in mind, always regarding the habitual drug user or alcoholic, that he is usually not a normal individual; frequently he is hereditarily neuropathic. It would seem that the symptoms arising during the withdrawal of the drug are largely due to the unantagonized action of the accumulated antitoxin the result of the long-continued ingestion of the morphin. The sweating, the vomiting, the diarrhea can be looked on only as the efforts on the part of nature at elimination. For us the symptoms of withdrawal have an all-important diagnostic significance, for if these symptoms are absent and the patient is comfortable, sleeps well and is contented he is obtaining the drug surreptitiously. (This paper will appear in full in a subsequent issue.)

Dr. Frederick C. Baldi, assistant visiting physician, Philadelphia County Prison, read a paper on "The Drug Habit and the Underworld." Eighty per cent. of those addicted to the drug habit are from 12 to 30 years of age. Ninety-five per cent. are criminals by reason of the acquired habit. Once the habit has become acquired by the women of the street it is hard to believe the degree of depravity to which they will descend to obtain the drug. The keynote of the successful management of the habitual drug user is supervision. I know of no medical cures. I do not believe in the so-called reduction cure; it is not the solution of the problem and simply affords the victim the means of continuing the drug. Absolute and immediate withdrawal, the withholding of other drugs as substitutes, and hydrotherapy to the limit are the cardinal factors in a speedy recovery. This recovery will require twenty-four hours in mild cases and not more than three to five days in the most severe cases. The patient should be fed and put to work under supervision. In our prison care of the habitual drug user, no matter how long he has been addicted to the drug, he must take a cold shower bath, rub himself if able, and if not, be rubbed. He immediately goes to sleep and wakes asking for another bath. Neisserian and luetic infections are most commonly associated with the drug habit; pulmonary tuberculosis and asthma are of frequent association. The beneficial effect of the prison treatment is largely due to the enforced regular living, but without this supervision the drug user returns to his habits. He is essentially a dependent and in the same category as the insane and feebleminded. Legislation regarding the habitual drug user, per se, is absolutely useless. Legislation rather should be directed toward the producer of the drug. There should be state control of the drugs from the crude form to the finished product. Such control of the drug would render an institution unnecessary. The Harrison Act has proved a failure. Whatever legislation is to be made on this subject, let the county medical society submit recommendations before a bill becomes a law, not wait until the law is passed and then cry out that another injustice has been wrought on the medical profession.

I most certainly differ from the idea conveyed in the title of Dr. Dercum's paper, for I am inclined to believe in the relative frequency, not infrequency, of the drug habit among the middle and upper classes.

Dr. John H. W. Rhein, in discussing: I have had opportunity of treating many cases sent to the Polyclinic Hospital by Mr. Kane in connection with the operation of the Harrison Act. The patients first sent were habitués of the tenderloin, forced to take the treatment from fear of arrest if they continued the habit. With some the drug was withdrawn successfully and they left the hospital in a week or two in good condition; others resisted treatment and left in a day or two. At first we were rather encouraged with the results, finding through the social service that some of those treated remained away from the drug for from one to four weeks. These were later, however, lost sight of. A second class was made up of those sent in by missionaries or social workers, not the purely tenderloin class, but those who went to the tenderloin but still tried to work. Some of these paid for semi-private wards. Most of these stayed until the drug was entirely removed. They promised to return and while many did, others were lost sight of. Those of the first class we may regard as hopeless; of the second class we may say there is some hope in a small percentage of cases. Our treatment was not so heroic as Dr. Baldi's. We gave them hyoscin and belladonna and elimination was effected by calomel and salts for a couple of days. At the end of a week almost every patient was fairly comfortable. I have had several cases in which the patients had been taking the drug for twenty-five years, using a large dose hypodermically, whom I treated in this way without untoward results. I fully approve of restricting the sale of the hypodermic syringe because of the acquisition of the morphin habit dates from the introduction of the hypodermic syringe. The most rational way of curing the evil is the enactment of laws restricting the sale of the drug. While patients are well cared for in the general hospital, to have special wards would be ideal. The extent of the habit is very great and mainly confined to the underworld. In an experience of twenty-six years I have had relatively few cases among the better classes. The real problem of the drug habit is the social problem of the tenderloin.

Mr. Christopher Koch: I agree with Dr. Baldi that the best method of treatment is the entire withdrawal of the drug at once. The worst case I ever saw was that of a man 35 years of age who had had the habit for twenty years. We took the drug away from him entirely and so long as he was under restraint he improved. Left to himself, however, he would return to the drug. I do not believe there is any cure for the habit. There seems to be a strong desire among dopes to spread the habit. Through the South contracts are made with negro labor to give them dope to obtain a greater amount of work from the laborer. When from the effect of the drug they are unable to work they are turned loose and a new bunch of colored labor secured. A law to be effective should be prohibitive; the many "provisions" written into it emasculate a law. If you want to curtail the dope habit, dispensing of the drugs should be stopped. The manufacturer must be restricted. I believe that all these drugs should be prescribed by themselves; it is the mixtures that do the harm. Regarding the requirement of patients to register I do not see how the difficulty would be overcome of having them register with two physicians. If the state legalize the reduction treatment, which personally I think is a mistake, there should be a central point of registration and for receiving the drugs.

Dr. Howard W. Hansell: I do not know whether Dr. Baldi or I at the penitentiary was the first to practice the immediate withdrawal of the drug. We each found that the other was following this plan. I have not the slightest doubt that there is a cocain habit. The usual form of syringe of the chronic dope is a rubber bulb from an eye dropper which he ties onto a needle. Restricting the sale of the hypodermic syringe would not therefore affect him. Regarding the gradual reduction treatment, I do not believe you can treat a dope case in the office any more than you can treat the drunk case.

Dr. H. C. Wood, Jr.: In an individual case I have been impressed with the fact that we do not kill people by abrupt withdrawal of the drug. In this particular case the man could scarcely walk; the temperature in the mouth was less than my thermometer would register; weight 95 pounds. He was sent to the hospital and was not given a grain of morphin or other opiate. In the first week he gained 10 pounds; the second, 8; the third, 5. At no time were there symptoms to cause serious alarm. The most important problem before the society tonight is not the treatment of the individual, but the treatment of the community. The number of persons who can be cured of the drug habit is extremely small. Prevention of the spread of the drug habit is much more important to the community than the treatment of the individual. Federal legislation has failed to stop the sale of the drug because the United States Government has not authority in the state of Pennsylvania, under our Constitution, to tell us how we shall regulate the sale of morphin and cocain. We are behind the majority of the states of the Union in the matter of the control of the sale of narcotics. The influence of the medical profession back of the people is needed to secure adequate legislation in this matter.

Dr. Alfred Gordon: In a study of the effect of cocain and morphin from the neurological and psychiatry standpoints I have concluded that the majority of cases are not curable. The most striking feature is the defective will power and all that goes with it. In treatment I cannot subscribe to the abrupt withdrawal of the drug in all cases, but cases must be treated individually. Prevention is the most important consideration. To establish this we must find the cause, and this is usually within the individual himself, inability to cope with the disappointments, and stress of life, etc. In prophylaxis I would suggest that much could be accomplished by enlisting the interest of social service organizations.

Dr. George E. Price: My experience with these cases has been confined to a comparatively small number in private practice and a rather large number in the Philadelphia General Hospital where Dr. McIvor and I made an analysis of a series of cases. The type of case found there and our results corresponded well with Dr. Baldi's findings in his prison work and those of Dr. Rhein in the hospital cases, except in the matter of immediate withdrawal. We found that we obtained the best results by withdrawal, carried out as rapidly as possible; of morphin in from two or three days to two weeks, except in one or two cases in which very large doses had been taken for many years and the patients were feeble. I believe there is a cocain habit, but cocain, in my experience, can always be withdrawn abruptly. Patients observed at the Philadelphia Hospital included persons of 15, 16 and 17 years of age, nearly all dwellers in or frequenters of the tenderloin and they were from practically all walks of life. The average amount of morphin taken daily was 15.3 grains. The largest dose was 90 grains in one day. The cocain and heroin habit seem to be of recent origin in the tenderloin. That the patients were degenerates was found by the signs of developmental arrest in about 40 per cent. of cases. I agree with Dr. Rhein and Dr. Dercum that the habit in the upper and middle classes is becoming less frequent. Regarding the prognosis of the individual case there seems to be wide difference of opinion. One writer makes the statement that the cure of the morphin habit is as impossible as the cure of the inoperable cancer. The so-called drug institutes claim from 80 to 90 per cent. of permanent recoveries. I am skeptical about these reports. In our hospital cases the same patients returned from three to five times. Many of them had been treated in these institutions. It is my experience in my private work that patients do not stay cured. After all, the crux of the question would seem to be, not in the cure of the individual, but in striking at the root, getting at the supply. With that belief I am in hearty accord. The only effectual management is that of having the cases under supervision and restraint. I would favor having a farm or place where these men might be kept for a reasonable time until their general health were built up and where they might be at least self-supporting.

On motion of Dr. H. C. Wood, Jr., consideration of the suggested Anti-Narcotic Act was referred to the Board of Directors with full power to represent the Philadelphia County Medical Society.

Samuel McClary, III, Reporter.

THE TRUTH ABOUT MEDICINES

NEW AND NONOFFICIAL REMEDIES

Since publication of New and Nonofficial Remedies, 1916, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies":

Mercurialized Serum-Mulford. — The following dosage forms of mercurialized serum-Mulford, described in New and Nonofficial Remedies, 1916, p. 192:

Mercurialized Serum-Mulford, No. 5-A.—Each package contains one 8 Cc. graduated sterile glass syringe with sterile needle, containing the equivalent of 0.0055 Gm. (1/12 grain) mercuric chloride.

Mercurialized Serum-Mulford, No. 5-B.—Each package contains one 8 Cc. graduated sterile glass syringe with sterile needle, containing the equivalent of 0.011 Gm. (1/6 grain) mercuric chloride.

Mercurialized Serum-Mulford, No. 6-A.—Each package contains ten 8 Cc. graduated sterile glass syringes with sterile needle, each containing the equivalent of 0.0055 Gm. (1/12 grain) mercuric chloride.

Mercurialized Serum-Mulford, No. 6-B.—Each package contains ten 8 Cc. graduated sterile glass syringes with sterile needle, each containing the equivalent of 0.011 Gm. (1/6 grain) mercuric chloride. H. K. Mulford Company, Philadelphia (*Jour. A. M. A.*, Dec. 9, 1916, p. 1759).

Pertussis Bacterin-Mulford.—A pertussis bacillus vaccine (see N. N. R., 1916, p. 321). Pertussis Bacterin-Mulford is sold in packages of four syringes containing 50, 100, 200, and 400 million killed Bordet-Gengou bacilli. H. K. Mulford Company, Philadelphia (*Jour. A. M. A.*, Dec. 16, 1916, p. 1851).

PROPAGANDA FOR REFORM

Iron Cacodylate. — While manufacturers appear most ready to take advantage of the present interest in iron cacodylate by offering this in the form of ampules, etc., they have given little help to the A. M. A. Chemical Laboratory toward the establishment of standards for this arsenic compound. Manufacturers are ever ready to sell drugs of all sorts, but in view of the small demand for little used drugs, they cannot or will not safeguard the identity and purity of such drugs (*Jour. A. M. A.*, Nov. 25, 1916, p. 1593).

Plant Juice.—"Plant Juice" is a "patent medicine" which is said to yield an annual profit of $90,000 to Col. Frank A. Dillingham of Cincinnati. The Milwaukee Health Department reports that, in addition to 20 per cent. alcohol, "Plant Juice" contains aloes, licorice with possibly a little cascara sagrada or senna. This nostrum is advertised as "beneficial" in anemic conditions, nervousness, sickness and debility, headache, backache, dyspepsia and various other ills (*Jour. A. M. A.*, Dec. 2, 1916, p. 1685).

Dakin's Hypochlorite Solution.—The following procedure is claimed to have superseded the previously published formulas: Stir 200 Gm. chlorinated lime into 5,000 Cc. ordinary water and let stand over night. Dissolve 100 Gm. anhydrous sodium carbonate and 80 Gm. sodium bicarbonate in 5,000 Cc. cold water and pour this into the chlorinated lime mixture, and shake for one minute. After one hour siphon off the clear liquid and filter it through paper. A portion of this must not become red if a little dry phenolphthalein is added to it (*Jour. A. M. A.*, Dec. 2. 1916, p. 1687).

Toxinol.—Toxinol is a "syphilis remedy" marketed by the Hawes Chemical Co., Louisville, Ky. It is a shotgun mixture characteristic of the days when syphilis was treated with haphazard mixtures of iodides, mercury and vegetable "alteratives." The Council on Pharmacy and Chemistry has examined Toxinol and the claims made for it, and reports that Toxinol is ineligible for New and Nonofficial Remedies because it is an irrational combination of drugs, marketed under a name that is non-descriptive of its composition and with unwarranted and misleading claims (*Jour. A. M. A.*, Dec. 2, 1916, p. 1687).

More Misbranded Nostrums.—The following nostrums were found to be sold with false and fraudulent therapeutic claims: E. K. Thompson's Barosma Compound was found to be a watery-alcoholic solution containing bromid of potassium 3.85 per cent., potassium acetate 2.6 per cent., extract of buchu and sugar 18.4 per cent. It was sold under the inferential claim that it was a cure for Bright's disease, inflammation of the kidneys, etc.——Sayman's Vegetable Liniment Compound, sold for the treatment of deafness, fever, ague and even sore nipples, toothache and chilblains, was found to be a hydro-alcoholic solution of camphor, chloroform, capsicum, oil sassafras, ammonia and plant extractive, and probably turpentine.——Knorr's Genuine Hien Fong Essence or Green Drops was found to contain 69.72 per cent. alcohol (by volume), 0.35 per cent. ether (by volume), 0.28 gm. nonvolatile matter per 100 Cc., flavored with oil of spearmint. It was said to be an excellent remedy for diseases of the stomach and bowels and many other ailments (*Jour. A. M. A.*, Dec. 9, 1916, p. 1775).

Arsenobenzol (Philadelphia Polyclinic). — Dr. Schamberg explains that the Dermatologic Laboratory of the Philadelphia Polyclinic availed itself of the opportunity to supply their product when salvarsan was not obtainable. Having so served this purpose in the interest of humanity and the public health, the marketing of their product was discontinued when the German product became again available. The laboratory is not established for commercial purposes and could not afford to become embroiled in patent litigation which would no doubt be instituted by the owners of the salvarsan patent (*Jour. A. M. A.*, Dec. 9, 1916, p. 1776).

Sulfo-Selene-Walker. — The New York *Tribune* explains that it was caught "napping" when it gave space to a discussion of Dr. C. H. Walker's cancer treatment, "Sulfo-Selene." It explains that, while there is probably no single false statement in the published interview self-sought by Dr. Walker, the impression sought to be conveyed that Sulfo-Selene will cure cancer, rests on no such foundation of evidence as to justify a reputable and responsible physician in setting it forth in the public prints. The *Tribune* explains that Dr. Walker's preparation has failed to obtain that recognition which would have given it a scientific status, namely, recognition by the Council on Pharmacy and Chemistry (*Jour. A. M. A.*, Dec. 16, 1916, p. 1864).

More Misbranded Nostrums.—The following "patent medicines" have been held misbranded under the federal Food and Drugs Act, chiefly because of false and unwarranted therapeutic claims. Mrs. Winslow's Soothing Syrup, declared to contain 5 per cent. alcohol and 1/40 grain morphine sulphate to each fluidounce together with oil of aniseed, caraway, coriander, jalap, senna and sugar syrup (as now marketed the preparation contains no opiate).——Johnson's Iodized Extract of Sarsaparilla found to be a simple vegetable preparation with only an appreciable amount of potassium iodide.——Matusow's Nulfey contains 51.8 per cent. sodium salicylate. An alkaloid, probably berberine, and emodin were present (*Jour. A. M. A.*, Dec. 16, 1916, p. 1865).

Bromin-Iodin Compound.—This preparation was submitted to the Council on Pharmacy and Chemistry with the following formula: "Iodin Gr. 1, Bromin Gr. ¼, Phosphorus Gr. 1/100, Thymol Gr. ⅔, Menthol Gr. ⅔, Sterilized Oil fl. dr. 1." According to the promoters Bromin-Iodin Compound is "A Powerful Anti-Tubercular Agent for Hypodermic Use in Pulmonary and Laryngeal Tuberculosis . . ." The Council declared the preparation ineligible for New and Nonofficial Remedies because the "formula" was impossible if it is intended to indicate the composition of Bromin-Iodin Compound; and meaningless if it is intended to indicate the ingredients used in the manufacture; and also because there was no satisfactory evidence for its therapeutic efficiency (*Jour. A. M. A.*, Dec. 23, 1916, p. 1958).

Castrox.—Castrox is a castor oil emulsion claimed to contain castor oil 50 per cent., glycerin 10 per cent., with water and emulsifying agents. It was said to be prepared by a "unique three-day process with special apparatus and is more than 'just an emulsion.' It is a MUTUAL emulsion, for the oil and aqueous solution have been united without 'forcing' . . ." The Council held Castrox to be an unessential modification of an established article, marketed under a proprietary name and with claims which give a false value to a simple castor oil emulsion, and therefore not admissible to New and Nonofficial Remedies (*Jour. A. M. A.*, Dec. 23, 1916, p. 1956).

More Misbranded Nostrums.—The following "patent medicines" were found misbranded under the Food and Drugs Act in the main because unwarranted and false therapeutic claims were made for them: Smith's Kidney Remedy, found to be a hydro-alcoholic solution containing glycerin, potassium acetate, trace of alkaloid, laxative extractive plant drugs.——Hill's Syrup of Tar, Cod-Liver Oil Extract and Menthol, essentially a sweetened hydro-alcoholic solution containing small amounts of chloroform, menthol, morphine and tar; ipecac, tolu, cannabis indica and wild cherry were indicated; cod-liver oil was absent.——Mag-No Brand Liniment, essentially an aqueous solution of ammonia, flavored with sassafras oil and colored.——Radway's Sarsaparillian, essentially a watery-alcoholic solution of sugar, potassium iodid, arsenic, a trace of alkaloids and certain plant substances.——Dr. Shoop's Diphtheria Remedy, consisting of sugar syrup with a very small amount of soluble chromate, glycerin and salicylic acid.——Dr. Shoop's Preventics, a tablet containing a small amount of unidentified vegetable extractive matter.——Hot Porous Plaster, essentially a capsicum plaster.——N. H. Downs' Vegetable Balsamic Elixir, a sweetened solution of opium, ipecac, glycerin, and small amounts of calcium, potassium, and iron compounds, flavored with anise.——Kopp's Baby's Friend, containing 8.5 per cent. alcohol and ⅛ grain morphin sulphate to the fluidounce.——Prof. Hoff's Prescription, formerly known as Hoff's Consumption Cure.——Dr. Haynes' Arabian Balsam, apparently a mixture of cotton seed oil, turpentine and oil of cumin.——Russia Salve, sold as a cure for conditions ranging from "cancers" to "mosquito bites" and from "swelled nose" to "ingrowing nails" (*Jour. A. M. A.*, Dec. 23, 1916, p. 1956-1957).

Lacteol.—This appears to be a lactic acid ferment preparation. The advertising material is of the usual extravagant character. The preparation is made in Paris and, since the bacteria lactic acid ferment preparations are short lived, may be inactive by the time it is used here (*Jour. A. M. A.*, Dec. 23, 1916, p. 1959).

Sodium Cacodylate in Syphilis.—While Nichols has shown that sodium cacodylate is worthless as a spirocheticide, it is still being used in the treatment of syphilis, and it is the essential constituent of venarsen, a proprietary syphilis remedy. As a result of extensive clinical trials, Dr. H. N. Cole concluded that sodium cacodylate has no spirocheticidal value. At the utmost it has perhaps a slight action on the papular and nodular syphilids, but in no case is this effect to be compared with that produced by mercury and potassium iodid. In cases of syphilis with mucous patches sodium cacodylate is worse than useless (*Jour. A. M. A.*, Dec. 30, 1916, p. 2012).

Tanret's Pelletierine.—The exact composition of Tanret's Pelletierine is not known, but is believed to be similar to the pelletierine tannate of the U. S. P. This is said to be a variable mixture of the tannates of four alkaloids of pomegranate. As only two of the alkaloids have tenifuge properties the activity of the different preparations varies with the proportion of these alkaloids which are present (*Jour. A. M. A.*, Dec. 30, 1916, p. 2030).

O-Do-Cure.—The A. M. A. Chemical Laboratory reports that a solution essentially similar to this "perspiration remedy" may be made thus: salicylic acid 1 grain, boric acid 30 grains, alcohol 3 fluidrams, perfume sufficient, water to make 1 fluidounce (*Jour. A. M. A.*, Dec. 30, 1916, p. 2030).

Mercuric Benzoate.—When mercuric benzoate is dissolved in sodium chloride solution for injection purposes a complex mercuric compound is produced in which the mercury is a part of the acid radical. It is safe to assume that the therapeutic effect of a given weight of mercury as mercury benzoate in a stated volume of sodium chloride solution will be the same as that of the same weight of mercury in the form of mercuric chloride in the same volume of sodium chloride solution (*Jour. A. M. A.*, Dec. 30, 1916, p. 2030).

Quinine Injection.—By taking proper precautions the number of cases of abscess formation and necrosis from the injection of quinine may be greatly reduced, but the danger of their occurrence cannot be entirely eliminated. For this reason all authorities agree that the administration of quinine by injection should be confined to the most urgent cases of pernicious malaria. The two most important precautions are, that the injection must be intramuscular and that the solution should be dilute—not stronger than 10 per cent. The best salts are quinine dihydrochloride and quinine and urea hydrochloride (*Jour. A. M. A.*, Dec. 30, 1916, p. 2030).

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ADDRESS

CHAIRMAN'S ADDRESS *

CLARENCE M. HARRIS, M.D.
JOHNSTOWN

Having been secretary of this section three years and chairman during the present year, I have grown much interested in the advancement of its work. I think that we have good material presented, and that the men always have a desire to help the officers in the section work; but it has occurred to me that some of you could gratify the officers of the section, as well as the other members of the program committee, by getting at this work a little earlier in the year.

Some of you may be acquainted with the method of getting up the program. The committee meets in January, and certain plans are discussed and decided on. Then there is another meeting in May, to go over the papers that have been submitted and report on those that have been solicited. We have a certain number of voluntary papers, and solicit the remainder.

We have found that whereas in January the surgical and medical sections often have a number of papers submitted, so that they can make their choice of those they need to place on the program, it is an almost unheard of thing for this section to have a paper submitted by that time; and even by May we seldom have more than two or three voluntary papers. Of course, all papers submitted voluntarily cannot be used, because they may conflict with one another; so that some must be declined, not because they are not good, but because some other paper has already covered the subject. Nevertheless, it would help the work of the section greatly if every member would feel that he is of use to the section, and try to submit a paper to the committee early in the year. The officers are often hard pushed later in the season in trying to find speakers to occupy places on the program. It seems like an easy matter to get up a program of about twenty papers; but when it comes to getting the men pinned right down to appearing at the meeting with their papers ready to present, it is not so easy as it seems. It would be better if we could attend to the matter earlier, especially before vacation time. As this is my last year of service, I am not officially concerned; but I am interested in the success of the section's work in the future.

No member need hesitate to submit a paper, for all the papers presented have some value; even though, for the reason stated, they may have to be declined.

Your officers feel complimented that you have reposed confidence in their ability to handle the work this year, and we hope and trust that the program will be to your liking.

ORIGINAL ARTICLES

EARLY CARE OF SUPPURATIVE CONDITIONS OF THE MIDDLE EAR AND MASTOID *

NELSON S. WEINBERGER, M.D.
SAYRE

When we consider the comparatively great number of cases of chronic purulent conditions of the middle ear and mastoid with their attendant dangers and discomforts and permanently impaired hearing, we are constantly reminded of the great importance of their prevention, both by removal of causal factors of acute purulent otitis media and by its early and speedy cure. Chronic purulent otitis media should be a rare condition. The idea of this paper, then, is the early and thorough care of the acute suppurative conditions so that the percentage of chronic suppurations, chronic perforations, and damaged hearing are thereby greatly reduced and more lives are spared.

Early and thorough drainage of the middle-ear abscess, before and also after perforation, is not only recognized generally, but is a duty not to be neglected. Rather err on the side of having incised a bulging drum before pus is

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* Delivered before the Section on Eye, Ear, Nose and Throat Diseases of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 19, 1916.

* Read before the Section on Eye, Ear, Nose and Throat Diseases of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 21, 1916.

present than allow perforation to occur. The presence of a middle-ear abscess undiscovered before spontaneous rupture should be avoided as far as possible by carefully and routinely examining the ears of the sick, especially children, when there is the least obscurity as to the cause of illness, or when during the course of disease there is a rise of temperature or exacerbation of or new head symptoms not easily accounted for.

The two great factors for cure following incision of the drum are maintenance of good drainage and avoidance of the introduction of foreign or added infection. The more simple the treatment, the more easily are these two factors carried through; namely, frequent changing of sterile cotton pledgets placed loosely in the external canal and daily aseptic cleansing with the cotton-tipped probe. Routine irrigation has no more place in the local treatment of these conditions than it has in general surgery, and is often detrimental.

The two great general factors are the removal of sources of infection, and the increasing of bodily resistance. In spite of our best care, patients occasionally develop mastoiditis. They should then be put to bed at once and have cold applied to the mastoid region.

1. The mastoid may recover permanently, especially so if the source of infection ceases to exist.

2. The mastoid may become operative. Determination of the exact time when a mastoid becomes operative is rather difficult and somewhat of a personal equation. Generally speaking, operation should be performed for two reasons: (*a*) To give the patient the safest and quickest chance for recovery, and (*b*) to preserve good hearing.

Operation should not be deferred when we feel convinced that the chances of uncomplicated recovery and good hearing would be jeopardized by delay. It is well, however, first to allow Nature the opportunity to develop resistance to the particular infection in the system generally, and to establish a barrier against its extension locally. We should then give assistance by removing every single infected cell, for a poorly drained mastoid is just as liable to recur, and bring on complications or leave a chronic running ear as a preexisting unoperated mastoid with persisting nose and throat infection.

Although clinical findings are not an absolute guide, yet careful weighing of clinical evidence gives us a fair indication for the time best suited and safest for operation. A culture of the middle-ear discharge, when obtainable, has been made and the offending organism and the probable severity of the infection determined. The streptococcus capsulatus is particularly rapid in its destruction and extension to adjacent structures, and is especially dangerous.

Skiagraphs should be made of both mastoids, and when interpreted by a competent roentgenologist, are of great value.

A differential white blood count repeated at intervals of twelve hours, if no operation is performed, is important, for having found the character of infection it gives us a fair idea of the amount and rapidity of destruction in a given time. Temperature, severity of pain, and degree of tenderness are to be relied upon only as they assist in interpreting the main factors; namely, character of infection, skiagraph and differential white blood count. We know that operative mastoids occur in which no discharge becomes manifest either before or at the time of operation, and the amount of discharge varies so that in some cases we can hardly imagine how it is possible for so much pus and serum to be formed and drain through the opening in the drum. Intermittent, remittent, or early sudden cessation of discharge with or without pain is unfavorable as is increasing pain and tenderness. The symptoms, as said before, cannot be relied upon, however, without being often led astray in interpreting the main considerations. A bulging posterior wall is unfavorable but not an absolute and positive indication for operation, particularly so when there is no discharge. We cannot afford, however, to wait for its appearance when at any time pus has been or is manifest, and it is distinctly unsafe to delay operation if present under these conditions.

The principles involved in the surgery of purulent conditions of the middle ear and mastoid are precisely the same as in the surgery of pus conditions generally; namely, early and thorough drainage. It is far better to operate on a mastoid that might possibly have recovered from the attack without operation than to subject the patient to the deleterious and dangerous intracranial complications with the high mortality occasionally consequent to the delay, uncertainty and procrastination, incident to the questionable hope of ultimate recovery, because (*a*) operation stops bone necrosis about vital structures; (*b*) the ear is dry and the drum intact, thus the patient is not subjected to any future chronic discharge with its constantly attendant danger of labyrinthine involvement and intracranial complications; (*c*) perfect hearing results; (*d*) the operative mortality of early uncomplicated mastoids is very low; (*e*) the period of illness, pain, suffering and anxiety is very much shortened.

3. The conditions may enter upon the chronic stage. At the end of four weeks we regard the discharging ear as entering this stage providing that previously acute conditions have subsided or disappeared, and increase bodily resistance by means of autogenous vaccines and remove any attending source of infection in the nose or throat.

Autogenous vaccines are of very little value unless properly prepared. When the vaccine is that of the primarily causative organism the benefit derived from its use is often remarkable, and never fails to produce an effect upon the discharge. All extraneous and contaminating organisms must be isolated and ignored by plate cultures, the material for culture having been obtained aseptically from the middle ear by means of a fine cotton-tipped probe applied directly to the opening in the drum. One or two injections at an interval of five days will usually effect a cure; occasionally several more are needed, but when it is necessary to give more than two injections we feel that the vaccine is not what it should be and make a new one.

This paper presents nothing new, but attempts to further implant the idea of early operation, the reasons therefore having been amply put forward. We do not wish to appear unduly radical, however, but feel that the interests of our patients are by far the better served, not by conservatism, but rather by intelligent radicalism.

DISCUSSION

Dr. Lewis H. Taylor, Wilkes-Barre: I heartily agree with Dr. Weinberger in almost every point presented in his paper. Possibly I might take exception to some. I think we cannot emphasize too strongly the importance of early puncture of the ear drum in acute suppurations of the middle ear.

Last Saturday I was called to see a young woman, 28 years of age, who was suffering intensely with earache. She had a high temperature and was unable to sleep without an opiate. Her husband, a physician, had advised her that an operation might be necessary but she pleaded for delay. There were no symptoms of mastoid trouble except the severe pain, the bulging drum, and the fever. All these confirmed the diagnosis that her husband had made. Under general anesthesia, I incised the drum freely, washed out the discharge, and packed the canal very loosely with absorbent cotton. I left word that the ear should be syringed occasionally with weak bichlorid solution; and this is the point, as you see, in which I am not quite in accord with the essayist. He condemns irrigation entirely; I frequently use it. From the standpoint of a hospital physician, he is correct; but these patients must frequently be treated at home, where the irrigation can be carried out under careful instruction. On Sunday I inquired after the patient, and found her much relieved. The fever had gradually subsided, and the pain was nearly all gone. Yesterday (Wednesday) I again telephoned to ask about her condition, and received word that she is practically well.

Now a word as to the method: This is an important operation, and should be done under general anesthesia, although I have often performed it in my office. No amount of local anesthesia, however, can make it a painless operation.

In regard to the mastoid operation, Dr. Weinberger thinks that cases of genuine mastoid disease may recover without operation. The experts say not, however. Then Dr. Weinberger is not an expert, but neither am I, for I stand by him firmly and believe that many such cases do recover. I surely have seen some in which I advised delay and the patients recovered; and some in which I advised operation, and the patients refused to have it done and recovered. Even so, it probably would have been as well, or better, if all such cases had been operated on.

The essayist has not laid stress on treatment of the nose and throat. I know that the paper does not deal with preventive treatment, and it is not, therefore, within my province to discuss it. I will not, except merely to say that if we could keep these noses and throats in normal condition, we should not have any ear cases to treat. But even after the ear trouble has developed, the treatment of the nose and throat is of vital importance. I wish that I had the faith in the vaccine treatment that the essayist has, and I hope that it may yet prove a valuable adjutant in the treatment of these cases; but I do not believe that in acute cases we should allow the patient to go on suffering for several days while we are trying the vaccine treatment, when an early incision of the drum membrane and careful cleansing would improve the case and often make the vaccine treatment unnecessary.

Dr. Clinton J. Kistler, Lehighton: Dr. Weinberger made a statement that interested me very much, in the fact that every diseased cell must be removed so as to take no chances. I represent probably a large class of men who do this kind of work and have not the facilities of some of the large hospitals. I am located in a town of six to eight thousand, and have the advantage of having two rooms reserved for me at my nurses' home, one of which I have arranged for an operating room. I also have the advantage of operating in a very good hospital where I try to follow the lines mentioned by Dr. Weinberger. I find, however, that I am frequently called in consultation, perhaps 10 miles out in the country, to see a poor child who is seriously ill with a large inflamed mastoid in the first stage, or perhaps in the second. I cannot afford to take that child into my private place free of charge, and we have not unlimited facilities for free treatment at the hospital, even if parents always consented to immediate removal to the hospital. What am I to do? Well, I have done this, many times, and therefore can talk from experience.

With a consultant it is not very difficult to give the child ether in the home, open the mastoid cortex, get into the antrum, establish free drainage, and the child gets well. I may have had exceptionally good luck; but in all of the cases in which I have opened the mastoid early and established free drainage from the antrum, without taking out absolutely the whole mastoid (because you can not very well do it under these conditions), the result has been good. I think, therefore, that these statements made by experts should not deter the average man from opening up the mastoid early. Usually the way is found for you. Where there is pus outside the bone, the cortex is easily opened, especially in small children, and they get well permanently and without recurrence.

What we hear of the necessity for thorough and radical operation should not prevent a man from taking these first steps. If the child should not get well, it can at any time be sent to a place where any further indications can be met. I have never had to do this. Do not be afraid to open the mastoid because you cannot do a radical operation immediately.

Dr. John J. Sullivan, Scranton: I cannot understand why Dr. Kistler, when he has the skill to open the mastoid antrum, cannot open the entire mastoid. I do not think that he understood Dr. Weinberger when he talked about the radical operation.

Dr. Weinberger: You should clean out the whole mastoid.

Dr. Sullivan: It is not the radical operation of removing the entire mastoid, but cleaning out the diseased cells, that Dr. Weinberger referred to. We had two cases recently. Both were opened into the antrum; in other words, improper operative procedure was carried out. Was it not well to go ahead and clean out the mastoid thoroughly? I agree with Dr. Weinberger in every detail except about keeping the cotton in the ear. I think that is valueless. In regard to irrigation, I believe that the doctor is right. There is more harm than good done by irrigation. Suction, however, can be used. I believe that it is up to the specialist himself to take care of the patients for several days after an acute attack of mastoiditis. He should not trust them to outsiders. In many cases the posterior part of the mastoid will not be properly eviscerated if you do not make the Whitting incision. I quite agree with Dr. Weinberger about vaccines. I have seen three or four untreated cases in which I have used vaccines and am still using them in other cases. I agree with Dr. Taylor about general anesthesia. I have been using local anesthesia, however, and think that we can open the drum painlessly by using cocain, menthol and phenol, which form a liquid. This solution does not hurt, but it causes an inflammatory reaction, which soon passes away. We put an ounce of ether on a heavy pledget of gauze and smother the child with this. It is not as bad as one might think, and has been done in a series of over one hundred cases. It is not painful. The ear drum can then be opened, and there is no inflammatory reaction. I had not tried ether on an adult until one time when I tried it on a cab-driver, who came in with an acute attack. I put an ounce of ether on some gauze and put it to his nose, and told him to hold it tightly.

Dr. B. Alexander Randall, Philadelphia: In the first place, I wish to say that I am not "an expert." I was talking with my friend Dr. Taylor about a great many things that I hoped to learn from him, and I believe with him that a great many of these cases which show the evidences of mastoid inflammation, recover under conservative treatment in spite of the fact that I am sure they have a marked empyema of the mastoid cells, which is a different thing from caries. It cannot always be discriminated from caries, however; but an empyema can normally drain from the natural passages of the ear, although it cannot from the pleural sac. I have brought through only about three thousand cases with red, tender and swollen mastoids, so perhaps I have not had enough experience yet to know what I am talking of. In one case the hearing was badly affected and there was evidence of labyrinth trouble, but that was the sole instance of bad hearing after this ultraconservative, inexpert treatment. I feel that there is a great field, in the hands of men who, if they be not expert, have had a large experience in conservative dealing with these matters. The youngster, however, cannot afford to be so conservative, and I do not advise it. He must be more radical, because he has not the experience to judge of the cases in which it is wise to wait.

There is one thing that I wish to take exception to in Dr. Weinberger's paper. In the first place, I wish to state that I use irrigations constantly, and think most highly of them, not so much as a cleansing procedure, but as a means of applying heat at the back wall, when we see that there is sagging of the wall tissues, at the point where there is the smallest distance between the point of application of heat and the seat of infection. I do not consider it wise to use an icebag to tissues that are on the verge of breaking down, but prefer to stimulate them by means of heat up to the limit of toleration, so as to enable them to throw off the infection. I have used cold for this purpose, and I think that with, perhaps, one exception, every case in which I used ice over the mastoid came to operation. It was only a dozen or two cases in which I used it, because I have long since ceased to employ it. By heat, I do not mean warmth, but heat up to the limit of toleration; and that, outside of the protecting bandage, which I generally employ. Scalding water can make itself felt through a good, thick bandage. Between applications there should be maintenance of heat by the bandage, as well as rest in bed and antipyretics.

I think that we should rather distinctly define in words what we mean by intervention, and not use the vague phrase of "radical operation" to express the procedure we wish to refer to. I always speak of mastoid evisceration, of tympanic evisceration or of tympanomastoid evisceration, the tympanum as well as the mastoid being thoroughly cleaned out. I believe that every cell recognizably or probably infected should be opened up and drained, but unless I have reason to believe that the infection is widespread, it is best not to operate so widely as some advise and, as I think, spread the infection.

Dr. George W. Mackenzie, Philadelphia: I agree, in the main, with everything that Dr. Weinberger has said. I would like to emphasize the importance of early drainage in acute middle-ear suppuration, and also the point made in reference to the thoroughness of cleaning out the spaces in the mastoid at the time of operation. It is axiomatic that whenever a patient dies in the event of pyogenic infection (and I have seen many at postmortem), it has been found that the surgeon though he may have reached the pus failed to reach all the infected parts. For this reason I believe in thoroughness.

Referring to the cotton pledgets, I am opposed to them for the same reasons mentioned by Dr. Sullivan. I use instead of cotton plain drainage gauze, not medicated. I believe Dr. Weinberger made it clear that it is important to take care of the source of the infection, including attention to the nose or throat, especially where a nose and throat condition might be suspected as a contributing factor in keeping up the discharge. An early cessation of the discharge is very valuable as a diagnostic sign. Where there has been an acute suppuration with a discharge, which suddenly ceases, with or without pain, but usually with, it is a clear indication to do something in the way of opening up the mastoid. If skilful enough, we may try conservative means as suggested by Dr. Randall. I have seen mastoids get well without operation, as others have, but this was usually in cases where there was some little doubt as to whether an operation was indicated or not. I hesitated about doing an operation in a case recently and waited a while. Somewhat later, when the case appeared to be doing well, I was pleased and waited for a while longer, when to my disappointment a recurrence of symptoms suggested operation. The case see-sawed for a while and eventually I was compelled to operate. My conservative treatment might have been faulty, but I cannot help but believe that it would have been better to have operated earlier. My present feeling is to operate in all doubtful cases. This was the teaching of the Politzer Clinic, based on a vast experience, and I prefer to accept their doctrine to operate when in doubt rather than postpone operation with the risk of graver complications later.

Dr. Sullivan: May I relate two cases? The first case was in a young girl of 14 years, who came to our clinic with a history of pain over the mastoid and suppuration of the ear. That is, there was vague pain over the mastoid. The middle ear was normal. Hearing was normal. We took a roentgenogram which showed a clouding of the mastoid. We waited a week or so, and she still had pain. I said that it would be safer to open the mastoid than to wait longer, but she delayed having this done. Three weeks later the pain over the mastoid still persisted. We opened it and found free pus.

Another point brought out in the history of the second case is the advisability of operating early in older patients. In a man of 45 there is denser bone, and there is more danger of cerebral complications. This man came to my office with a history of discharge and pain for six months. He had been treated for three months by another man, and I treated him for three weeks. The ear symptoms cleared up and the hearing became normal. The mastoid symptoms also cleared up. Some weeks later, his daughter told me that her father was acting peculiarly. I asked her to have him come to see me. He came, and I found him vague in his answers to questions. He could tell what a ring, for instance, was used for, but not why, or what it was. We opened the mastoid and found it normal. We had to do a radical operation and found that he had no antrum. The temporosphenoidal lobe was exposed and we found pus. There was good drainage, but four weeks afterward the man died. He had no paralytic symptoms and no other focal symptoms except that mild aphasia. Although we got complete drainage and could find no other condition present, he died. I wish to put it on record that it is far better to operate early than to wait. We have not got the years of experience that Dr. Randall has, with his immense clinical facilities, and a death in a small town from neglect means much more to us who are practicing in country towns than to him. So it is better, as he says, to operate and be sure than to have a cerebral complication.

Dr. Taylor: There is a distinction between a thorough mastoid operation and a radical operation. The radical operation, in the proper sense, means taking away all the mastoid, taking away the chain of bones, and throwing all into one chamber. After such an operation, very often there is no hearing left in the diseased side. That is what we mean by the term "radical." If we do not wish to imply this, we might say that we do the operation radically, or do a thorough operation. That is, we go as far as there are any bad cells, and take out everything that is diseased. But you do not need to take away the ossicles very often in these early operations. In what is known as the radical operation, however, you take away everything.

Dr. Mackenzie: When Dr. Taylor spoke of the chain of ossicles, I presume he did not mean to include the stapes.

Dr. Taylor: In the radical operation you take away all the bones there.

Dr. Mackenzie: Except the stapes.

Dr. G. R. S. Corson, Pottsville: I want to emphasize a point in the care of the early cases, and that is prophylaxis. Keep the nose and throat clean and you will avoid many of these cases of suppurative otitis media following the removal of adenoids and tonsils, produced by the child's blowing its nose and coughing, and thus forcing septic material through the eustachian tube. I have been able to prevent many of these cases of trouble and ward off otitis media by draining the middle ear through the eustachian tube by the Yankhauer method, on which I I read a paper, some years ago, before this section. Following cleansing of the nose and throat, I open the eustachian tube, shrink it by means of astringents applied on cotton on a little twisted wire, aerate thoroughly the middle ear, and drain it in that way, before the condition goes on to suppuration.

With regard to the so-called radical operation, I do not care whether I do the classical radical operation or not. What I wish to do is to get rid of any diseased tissue. In my clinics I say, "I do not care where the necessities of the case lead me, whether I get into the lateral sinus or fossa of the skull, I aim to remove every bit of diseased tissue." I call it a thorough operation, or operating radically.

Dr. Weinberger, closing: I am glad that it was brought out in the discussion that it is important to remove every infected cell. I believe that this is recognized today. I used to irrigate in every case religiously and be as careful as I could; and yet I see where I can blame myself for a couple of mastoid infections that I do not think would have occurred had I not irrigated.

As to the use of autogenous vaccines, I wish to say that in this paper I limit their use to the early cases and their early care. I also employ them in the chronic cases. That is a different matter, however.

Dr. Kistler spoke about opening children's mastoids when out in the country. That is very well. It should be done. If a child needs immediate opening of the antrum, it is important that you do it at once; but remove that child immediately to a place where you can do a thorough and clean operation. You cannot always tell whether you have gotten into the antrum of a small child or not, and sometimes, under the best of conditions, you can hardly find it. If the antrum is not opened you are certain to have a recurrence some time, perhaps not for a few months or years, but when it comes, it may be very serious indeed.

Dr. Sullivan spoke of a man with a sclerosed mastoid. That case shows why I put such stress on having a plate made by a competent roentgenologist. You can see these pictures very well if you bring them up to the light. I had one of a man with a sclerosed mastoid, which was like ivory. You could not make an impression on it with a curet. I had to use the chisel. It shows very nicely on the plate that the mastoid cells were absent. The plate also defines the anterior limit of the lateral sinus, which is very important. A good roentgenologist can tell pretty nearly without fail when there is breaking down of the cells, whether there is pus present or not. There are cases that occur not infrequently in which there never was and is no pus present, and yet you find the cells broken down and the mastoid filled with granulations. I have a plate of that kind. There was a double mastoid, of exactly the same kind, in this case. Every cell was broken down and the cavity filled with granulations.

In regard to the frequent changes of cotton pledgets, I am glad that something was said about that. I had felt that I was damming up the discharge in the middle ear and canal, by using them, and that this was wrong, because drainage is the important thing. But without using them, you have drying up of the discharge, when there is not a great deal, and therefore stoppage and often there is acute eczema from an irritating discharge. That is why I use cotton, but there should be some better way of accomplishing the purpose.

About the anesthetic in opening the ear drum, I think that the best is equal parts of cocain, menthol and carbolic acid. Do not be afraid to use it. Fill up the canal with it. It does no harm. It anesthetizes the drum and sterilizes the field of operation. You must be careful, however, to remove the air bubble that often goes in ahead of the solution. It works perfectly in an adult, so that the operation is absolutely without pain. In children, I think it is better to give a short general anesthesia, as Dr. Sullivan has suggested, with sudden suffocation. The patient is quiet and it is better all around.

Dr. Randall: Had we not better say primary ether anesthesia? Have the patient hold up the hand, as in giving gas, and we can well control the degree of action.

Dr. Clarence M. Harris, Johnstown: How would you explain the presence of blanching in one case, and its absence in another, with absolutely no diminution of congestion?

Dr. Weinberger: I would explain it by the presence of an air bubble under the solution by the drum.

Dr. Harris: I used cotton pledgets.

Dr. Weinberger: I used to do that, but gave it up because I found that I did not get absolute anesthesia in every case. Then I started to fill the canal up with the solution without cotton in it, going through the solution and letting the air bubble out, and I had no trouble in getting anesthesia.

Dr. Taylor: What do you mean by equal parts in the solution?

Dr. Weinberger: You make no solution. The deliquescent action of the drugs makes its own solution.

Dr. Taylor: You do not use the liquid carbolic acid?

Dr. Weinberger: No, the crystals.

TREATMENT OF DEFORMED UNION AND NONUNION OF FRACTURES *

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Cure of a fracture may be imperfect because consolidation has occurred with abnormal position of the fragments, thereby changing the bone's shape, or because no rigid bond of union has been developed to give normal rigidity at the site of fracture. The first condition may be objectionable merely because beauty of contour has been sacrificed, a loss of minor importance in some regions of the skeleton. A disability from change in bony outlines, which restricts motion or other function is, however, of greater moment. A joint may be chocked by irregularity within or near it, a limb shortened, the axes of bones altered, or the mechanical efficiency of the skeleton lessened by changes in the contact planes of articulating surfaces, or by impairment of the functional ability of the surrounding soft parts. The terms deformed or vicious union or malunion have been used to describe this deviation from satisfactory healing.

Greatly was I impressed in my early professional life with my preceptor's ability to correct, by subcutaneous rupture, the angulation and shortening of long bones due to malunion of fracture. Incision to expose the bones to operative treatment was then seldom employed. The risk of septic osteomyelitis was too great.

Preparation of a paper on rupture of the bond of union in treating such deformities caused me to study the method with care.[1] Experience with a fair number of patients in later years has convinced me of the general correctness of the opinions I then formed. Aseptic operative exposure for remedying deformed union of the fragments is demanded in only a comparatively limited number of fractures.

A second possible deviation from the usual process in repair of sundered bones is delay in ossification of the fibrocartilaginous tissue, the

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[1] Edinburgh Medical Journal, July and August, 1878; and Notes on the Treatment of Fractures, Appleton & Co., 1898, p. 44.

so-called callus, deposited between and around the fragments of bone. Nature uses this callus to maintain contiguity and relative immobility of the pieces until the fibers of the apposed surfaces have become rigidly joined by the osteoblasts. The divergent views of pathologists as to the parts played by periosteum, endosteum, marrow and contents of the Haversian system need not detain us in a mere clinical discussion of the treatment of imperfect unions.

The delay in union may be due to some abnormal condition of the patient's blood and solid tissues. In this case union occurs after a longer convalescence than is experienced in such fractures in other persons. The question of moment is the discovery of the cause, psychic or physical, mechanical or metabolic, of the delay. A query, however, also arises in the surgeon's mind as to when the delay has been sufficiently protracted to become an urgent reason for adopting the treatment proper for a true nonunion.

The most troublesome form of defective consolidation is absolute failure of the bone to re-establish its continuity and give normal skeletal rigidity. The bone ends may atrophy and become pointed and compact; or there may be created a bursal sac between the opposing surfaces, resembling a true synovial joint cavity. The latter is the so-called false-joint, which may be differentiated from absolute nonunion. This exists when two wedge-shaped or pointed ends lie near together with no bond of union whatever or only a flail-like band of fibrous ribbon between them.

It seems likely that the atrophic condition occurs when there is defective metabolism of the patient, or a decided loss of bone structure, from comminution or necrosis, preventing contact even after reduction. Inability to get the ends of the bone in contact because masses of muscle or tendon lie between the broken surfaces will explain many instances of false-joint (pseudo-arthrosis). The musculofibrous tissue prevents actual contact of bone ends, the osteoblastic cells are unable to cement the fragments together and the resulting mobility and friction give rise to a bursa to lessen friction.

Association of deformity with the failure of union would be expected when pseudo-arthrosis has developed as a result of entanglement of fragments in extensively lacerated muscles. When a fragment has been thrust through a button hole made in a muscle by its sharp end, atrophic nonunion would be rather likely to be found, especially if the surgeon has failed to withdraw the perforating piece of bone from the muscle belly so as to bring it into contact with its fellow fragment.

I recently had under care a man with fracture of the femoral shaft in which one fragment perforated muscle and skin. He also had glycosuria. The open character of the fracture was efficiently treated and no suppuration occurred. The sugar disappeared from the urine after he was in bed a short time, but no attempt at union had occurred at the end of about ten weeks. Exposure of the fracture by a colleague to apply fixation by an inlay of bone from his tibia showed atrophy of the bone ends, no attempt at union, and muscle wrapped around a fragment's end. It seems probable that the failure to disentangle the fragment at the beginning of treatment was more responsible for the nonunion than the man's diabetes or his despondent mental condition. The attempt to increase bone-making quality in his blood by calcium carbonate and calcium lactophosphate, which I employed, may have lessened the tendency to sugar in the urine. It could have little effect on the fragment imbedded in muscle. A coincident multiple fracture of the patella of the same leg united without difficulty. The patient passed out of my hands and another surgeon made an osteogenetic inlay splint from the tibia. Suppuration occurred and amputation was considered likely when I say him five months later.

Failure to reduce a fracture at the beginning of treatment may result in malunion, nonunion, or a combination of both. This is evident from the recognized requirement of coaptation, if proper alignment, freedom from overriding, and absence of rotary displacement are to be secured. Infrequent examination, and consequent failure to notice and remedy deviations from proper contour, while callus is soft, is a pregnant cause of malunion. In this variety of imperfect union, therefore, early reduction and frequent removal of dressings in the early days of treatment are essentials. Similar activity and wide-awakeness are important qualities of the fracture surgeon, if delayed union, nonunion, or development of true pseudo-arthrosis is to be recognized early enough to avert the undesirable occurrence or to relieve the resulting disability. In a word, deformed union is usually due to lack of knowledge of efficient treatment of the fracture or to neglect in applying well-known mechanical and physical principles to the problem of treatment.

Deformed union of various degree is more frequently seen than nonunion. I saw recently, without intentional effort, in my routine work of one day, three cases of fracture distortion of the lower end of the radius that had not been fully reduced, one case of fracture of the shaft of the femur, upon which I had operated by refracture for malunion, and one of deformity of the elbow from humeral fracture. Two of the radial fractures, one of which was ten weeks old, needed readjustment of the fragments. The other radial injury I had reduced myself when first seen by me a week after the accident. The femur had been allowed to unite with marked angular deformity, and at the end of eight weeks was treated satisfactorily by subcutaneous operative fracture followed by vertical traction. The deformed elbow several months old was later subjected to incision and osteotomy in an endeavor to improve motion and contour.

These instances, except perhaps the elbow, all might have been prevented, in my opinion, by proper reduction and careful supervision. The two worst deformities, namely, the ten-weeks-old radial fracture and the broken femur, evidently from the histories, had been entrusted to inexperienced medical men, after the institution of treatment by older surgeons.

Subcutaneous refracture for the correction of angular deformity of the union is comparatively easy. The crossbreaking strain is readily applied by grasping the ends of the bone and using the viciously united fragments as levers. When necessary, a wedge-shaped fulcrum may be applied beneath the convexity of the union to localize the fracturing force. The operator's bent knee or a padded block is available. In long-standing deformity of big bones like the femur, it may be necessary to increase the operator's manual power by bandaging a flat board to the limb so as to stiffen the distal joint and thus lengthen the lever to which the power is to be applied.

Occasionally simultaneous traction upon the distal portion of the limb may aid. Perhaps this is more valuable when the angular distortion is combined with overlapping. The clove hitch or the Levis traction plate well supplies the attachment to the limb. Radiographic examination of the osseous bond will give a fair idea of where and how the breaking strain should be applied. Driving an osteotome between the fragments in one or two places will weaken the connection and render the refracture possible with less expenditure of force. The small incision in the soft parts, as in correction of knock-knee and bowleg, need not destroy the practically subcutaneous character of the operation.

Osteoclasts are seldom to be used in these days of successful aseptic open operations. Conditions may arise, however, in which these machines are to be preferred. It must be unusual.

The last-named aids to the manual power of the skilled operator are more likely to be called into play when the deformity is caused by overlapping or rotary displacement of the fragment ends. Such deformities too are the ones in which subcutaneous rupture may be unsatisfactory. It is in these instances that open osteotomy is most frequently to be selected.

Subcutaneous correction of vicious union is available and successful for a long period after the fragments have been firmly united. I have corrected deformity from unreduced fracture at the lower end of the radius thus at from four to six months. Firm union of deformed fracture of the shaft of the femur has been ruptured subcutaneously up to six months. The time permitting successful disruption will depend upon the character of the displacement, the method of applying the power and the familiarity of the surgeon with the methods. Bandaging to the limb a board to stiffen the knee recently gave me leverage enough to break up a badly united femur I could not manage with hands alone.

After treatment is to be conducted on the same lines as are employed in similar accidental fractures. The surgeon will often be aided in the choice of method by a careful study of the causes of failure to obtain proper coaptation in the original bone injury. I have said already that this is often due to insufficient care or insufficient knowledge of modern fracture treatment. When refracture is deemed undesirable or impossible, open osteotomy, osteëctomy, with or without direct fixation, is to be used. Marked deformity or disability warrants the slight risk. Arthroplasty may be required to regain motion of involved joints. Asepsis is imperative in these procedures.

Delayed union should be hastened by massage of the limb, good food, fresh air, happy surroundings, hopeful attendants, and congestion of the limb by continuous or interrupted use of rubber constriction on the proximal side of the fracture. I am apt to give calcium carbonate, grains 5 to 10, and calcium lactophosphate, grains 5 to 10, in powder three or four times a day as an internal remedy. I do not know whether it does good.

A man, 75 years old, with a fractured tibia and fibula, accompanied by some suppuration at the point of impact of a horse's iron shoe, had at the end of eight weeks very little callus according to the Roentgen-ray plate, and a large amount of mobility was still present. He was brought to a Philadelphia hospital, where I gave him the calcium salts mentioned, and changed his gypsum encasement for a fracture box. He was dissatisfied and unhappy and insisted on going back to his country home at the end of a week. His family physician tells me that within four weeks there had appeared a large mass of soft material feeling like putty around the fracture of the tibia, and motion had become quite firm. I cannot believe the use of the medicine for only one week caused this rapid appearance of callus. It was the change in the metabolism of the man, probably due to his realization of how much happier he was at home than in a city institution in summer weather.

This history shows the need of due appreciation of the value of psychic as well as mechanical and medicinal agents in surgery. It also warns us not to be too hasty in adopting operative adjustments of fracture. I have recently seen a patient with nonunion of the femur run down hill very quickly in general health after infection of the site of fracture subsequent to an autogenous bone inlay. Operation of some sort was apparently demanded, but though the tibial wound by which the graft was obtained healed promptly, the fracture wound failed to remain sterile. This patient and the one in the delayed union case just mentioned are still under the care of their professional attendants, and their progress will be interesting.

Supplementary help in securing callus formation in delayed union are massage, hot water bathing, permitting some use of the limb, passive congestion with rubber constriction above the break, rubbing the ends together by manipulation, and injecting blood hypodermically into the tissues around the fracture.

When it is evident that the delayed union is likely to be permanent, treatment for nonunion must be adopted. It should be remembered that experience seems to show that direct fixation with metal plates retards consolidation of fractures. Hence, former views of the time limit allowed for consolidation before accepting the diagnosis of nonunion should be somewhat lengthened in recent fractures treated with metal plates.

Nonunion and actual false joint present difficulties of treatment. They are rather unusual results of fracture. The causes are interposition of soft tissues, infection, insufficient arterial supply and wide separation of fragments or actual loss of considerable areas of bone from injury or secondary necrosis preventing contact of bony surfaces. Bad general condition of the patient leading to inefficient metabolic activity at the site of fracture may be responsible; and so may local malignant disease or osteomalacia. Imperfect coaptation preventing osseous contact, a great degree of muscular displacement, and perhaps faulty immobilization are possible factors in the production of a mere fibrous union or of a false joint. Delayed union is more apt to be due to deterioration of vital forces; but nonunion and false joints nearly always depend upon a local cause. This is apt to be mechanical. A fracture that remains painful long after union is apparently obtained will usually be found on close examination to be the seat of a slight degree of abnormal mobility. An ununited fracture has in many instances this accompaniment of pain on use of the limb.

When the treatment suitable for delayed union has been tried, or radiographic examination shows that diagnosis of nonunion is applicable, operative treatment is demanded. This aims at removing the local cause and stimulating fundamental activity; or at converting the old ununited fracture into a recent one with fresh surfaces placed in contact.

The subcutaneous method is to violently bend and rotate the fragments so as to forcibly tear asunder the fibrous connections and strongly rub the ends together. This may be followed by tenderness, swelling, and consolidation. The manipulation to be thorough requires anesthesia, and should be of a character to bend the fragments at a right angle, and to rotate and extend as much as safety to vessels and nerves will allow. Immobilization with rigid support external is the after treatment.

Aseptic precautions have made exposure of the seat of nonunion so safe that now the surgeon rarely delays long before attacking the ununited fracture through a free incision. This allows more accurate information as to the local cause of the failure of union, and a wiser and more successful direct management of the condition.

In pseudo-arthrosis open incision is the only efficient treatment; and in even less perfect illustrations of false joint it is often to be adopted. The fragments are freed from fibrous muscular tissues, and the ends, often atrophied, are sawed off, and placed in contact. If atrophied, the fragment must be exsected at a point well above the narrowed compact portion so as to expose a wide surface of cancellous bone. The bare surfaces should be placed in contact, or a graft of bone, preferably autogenous, may be placed between the freshened ends. Coaptation should be obtained; it may be maintained by an autogenous inlay graft, as suggested by Albee, or by pegs or dowels of bone, or plates, screws, wires or catgut mats. It is possible that my suggestion of using fascia from the fascia lata of the thigh as a sheath or cuff or a similar cuff of periosteum from the tibia to maintain the contact may prove valuable. External support by a splint or gypsum encasement is used as in original fractures for the maintenance of correct position of the fragments.

In fracture of one of the parallel bones of the forearm it should be seen that the resected bone is not prevented from contact because the one which has not been broken is longer. In such cases the gap between the fragments should be bridged by an autogenous graft from the patient's tibia, a dowel graft driven into the medullary canal of the two ends, or a wedge-shaped graft driven between the fragment ends.

It has been suggested that when repair is likely to be inactive, the wound might be left open and packed with sterile gauze to cause irritative increase of metabolic changes. The surgeon should always see that there is contact of considerable surfaces of cancellous bone; and look to giving the patient happiness, fresh air and good food. Too little attention to these hygienic factors is a common fault among us surgeons. A good judge is said to need his law tempered with justice and mercy. A fracture surgeon needs his mechanics tinctured with psychology, physiology and hygiene.

Combination of deformed union and non-union is apt to be a most troublesome problem for surgical repair. An elbow may be chocked, the broken bones displaced at the seat of fracture by muscles, and the fragments ununited and atrophied. The femur and patella may be broken, one of the fractures being open, the other closed, and the patient the subject of grave malnutrition and despondent mind. Such problems require patience, enthusiasm, faith, skill and time to bring about the hoped-for convalescence. Several successive operations may be required.

313 South Seventeenth Street.

THE TREATMENT OF COMPOUND FRACTURES *

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The question of treatment of compound fractures is so far beyond the scope of a ten-minute paper or indeed any paper suitable for one issue of a medical journal that we will for the present purpose omit all detail and discuss, more as a questioner than as an expounder, the general principles involved in this class of injuries.

The ever-present problems that we are always called upon to face in the presence of every compound fracture are to prevent or cure infection and to produce and maintain satisfactory reduction. The most important is infection. Indeed it would be better if we substituted for open or closed fractures the terms infected or uninfected fractures, as it is the presence or absence of infection during the course of healing that makes the great difference in fractures both from a clinical and economic point of view. An open fracture that remains uninfected differs in principle, as to course, end results, etc., but little if any from a closed fracture. With infection, however, the entire matter changes; the duration of healing is twice, thrice or many times as long, suffering is much increased, the limb and life of the patient is at once put in jeopardy and the end result is very much compromised. Very few infected fractures are restored to even a near approach to normal, if indeed the patient survives at all.

If then the crux of this whole subject is wound infection we may well stop first of all to consider the newer teaching on wound infection coming from the war hospitals. In these days of mutual congratulation on the results of modern surgery it will be a shock to us to stop and realize the fact, as some of the English surgeons are hinting that we must do, that since the day of Lister our sole progress has been in the prevention of infection in operation, wounds, or in those we see very soon after trauma. At least until this war we have made little progress in the treatment of infection already established. If we honestly look back will we not all admit that this is to a large extent so. It is true that the large majority of infected wounds heal during an active period of antiseptic applications. Yet the European surgeons are beginning to tell us that even in such cases the wounds would get well quicker with no treatment except drainage and exposure to air and the sun or electric light. But what of the infected wounds that do not get well? We all know only too well of bad infections, cases which have gradually gone from bad to worse in spite of the most heroic use of antiseptics. Weeks of exhausting temperature and profuse foul discharge go on uninfluenced by antiseptic baths or continuous irrigations and death may even have been hastened rather than delayed by irksome and uncomfortable treatment, or even, perhaps, a chronic metallic poisoning. So then, if our present antiseptics are of doubtful

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value in mild and "self-recoverable" cases and of no value in severe and threatening cases, we may well pause to take account of stock.

From the earliest medical publications of the present war we have been hearing of the failure of antiseptics. This has led to very active research, clinical observation and experiment. Two items of promise have been evolved, the hypertonic salt solution of Wright and the hyperchlorous acid of Dakin. The exact place of these two fluids is not yet determined. Wright's solution, devised not to act as an antiseptic but to stimulate the normal physiological defenses, undoubtedly has a certain definite application. At the present time, however, the Dakin fluid makes decidedly the strongest appeal and we must now accept it as the most efficient, practicable antiseptic and one which under proper conditions does real good. Further experience with this fluid or its improved descendants may dispel some of the present skepticism concerning antiseptics.

In regard to the second factor in the treatment of compound fractures, namely, the production and maintenance of reduction, we must again learn from the experience of the present war. Many very ingenious plans have been adopted but they are not principles but only details to be studied with a given case. The one great principle, however, which has been brought forward and emphasized is that for success in the treatment of compound fractures from any point of view, whether comfort of the patient, rapid union, treatment of infection or what not, we must have for each fracture some device or system of devices which will allow sufficient freedom of dressings without at each dressing disturbing the position of the fragments. Here is the crux of this question, a plan that prevents sufficient dressing or allows it only at the expense of disturbing the fragments is bad. This general principle must be kept in view if a good result is to be obtained. Every fracture appliance must be devised for this end, namely, to keep fragments held in position and at the same time allow sufficient attention to the open wound.

Laying aside now all details we can consider how far we can develop ideal principles of treatment applicable to any open fracture. Here, especially, we need to employ our new terms of classification and speak of infected and uninfected fractures. Our ideal principle must involve, first, keeping the fracture an uninfected one, or if it is already infected when first seen, to change it into this class as soon as possible. When uninfected we should be able to treat it by any mechanical or operative plan desired, even though it is an open or compound fracture so-called.

Basing our ideas almost entirely on the writings of European army surgeons I think that we can already outline an ideal plan for open uninfected fractures.

First, as to the maintaining of the fracture uninfected: The wound must be treated at the earliest opportunity. First of all free drainage must be obtained. Skin must be further incised if necessary, side pockets followed up and, in other words, all areas exposed to infection must be made accessible. Then tubes and light gauze dressings must be so arranged that irrigations with Dakin's solution either at intervals through a syringe or continuously through a Murphy drip apparatus can be kept up. A satisfactory way is to put the tube or tubes into the deepest parts of the wound and bring them out through the gauze dressings and out through a sterile bandage. The sterile bandage with the tube lying against it is then surrounded by a sterile towel conveniently pinned so that at desired intervals the nurse may unpin the towel, turn it down and reach the tubes which are thus constantly kept in a sterile field. The gauze inside the wound must be lightly placed with the sole purpose of holding the tubes in place. We must soon begin to accept what Sir Berkley Moynihan and a few others are just beginning to teach us, that there "never yet was such a thing as a gauze drain," a gauze cork perhaps, and an inefficient one at that, but never a drain. Also our dressings must be light so that Dakin's fluid may get away and there really be an irrigation. Fluids must be caught in a photographer's tray for instance, or they must even run into the bed if necessary. They must not be held back. By plugging the wound area with cotton or oil silk dressings, which sog up the dressing and the wound and soak them in old albumin containing fluids which have not only lost their antiseptic quality but have perhaps become good culture media, we will prevent just the effect we are trying to produce. I believe that at least in civil practice where we get most of our wounds early we can, by working with sufficient attention to detail, keep the large majority of our fractures in the uninfected class and then after three or four days or perhaps longer we can treat such a fracture, even though there be an open wound, by whatever method in the individual case seems best adapted mechanically.

It is somewhat more difficult to lay down ideal principles concerning the particular types of mechanical fixation. We must, however, strenuously insist again that the ideal must be a fixation which will allow frequent dressing without disturbing the fragments. I believe that after the preliminary treatment to render the fracture uninfected, as time goes on the fixation methods will gradually narrow down to three; namely, open operation and suture of fragments with kangaroo tendon; second, fixation by an Albee sliding graft, or, third, extension by the Steinman pin.

County Savings Bank Building.

DISCUSSION

ON PAPERS OF DRS. ROBERTS AND WAINWRIGHT

Dr. J. B. Lowman, Johnstown: If there are fractures in which a follow-up system is not needed, they are the ununited fractures; they will always follow you. We should be careful in our method of treating them and guarded in our prognosis. Dr. Roberts, in regard to delayed union, has given a résumé of the causes and I think rightly. I think that at the present time there are not so many operations being done on fractures as there were several years ago. One reason is that we have had a good many bad results from the fact that the technic was not properly developed. Surgeons are now studying their fractures more closely, and under more scientific methods than heretofore. I think the treatment of fractures is a very serious proposition. We should consider very many angles before doing an operation, and before doing it should be perfectly satisfied in our own minds what we should do.

I have not been so successful as Dr. Roberts with those old fractures of four or five months' standing by breaking them over. I think we are losing time by trying such a method. Evidently that same fracture will many times possibly have to come to operation. I think that we are delaying time of causing more contusion and devitalization of the tissues. In regard to compound fractures, I think that Dr. Wainwright's paper is an admirable one, especially the conclusion of it. I think the success of the compound fracture is the primary dressing, and right here is where our first aid comes in. In compound fractures too much is done. We should let them alone. In our mills at home, at the time of a fracture nothing is put on the wound but a clean piece of gauze, and the patient put in an easy conveyance and sent to the hospital immediately. Our men are instructed never to pull a fracture.

I think that the thing to do is to convert the compound into a simple fracture before attempting any further method of operation. Heretofore, in years gone by, you remember the old method of treating compound fractures by the use of green soap and scrubbing of the tissues. The less we do, the better. The thing to do is to wipe all the foreign material off that we can and paint with iodin and put on a dressing. Our success with compound fractures by practically letting them alone has been that our percentage of infections has become very low. I agree with Dr. Wainwright in so far as his method of fixation is concerned. Every compound fracture is a problem in itself. The method of fixation we must adapt to fit that fracture. Have a shoe to fit the foot, the best shoe to compress the fracture and immobilize the fragments. Every compound fracture is a study and we must make the shoe to fit it. I am glad that Dr. Wainwright said nothing about plating a compound fracture. I do not think any plate should be put on a compound fracture. It is foreign material and will probably cause necrosis of the bone. If we have to operate on it, the methods of Albee, with bone grafts and kangaroo tendons, are the ideal methods.

Dr. J. Torrance Rugh, Philadelphia: I do not speak from the standpoint of the general surgeon. I seldom see these compound fractures. The type I see is the type Dr. Roberts mentions, of either nonunion or of vicious union, and, from the standpoint of the orthopedist, probably I agree with the reason Dr. Lowman gives, that I am not strong enough to break these up and bring them down in the position like Dr. Roberts is able to do. My general rule in all these cases of either vicious or nonunion is to operate under proper aseptic technic, and the results are almost always good.

Dr. William L. Estes, South Bethlehem: I have learned something about fractures from Dr. Wainwright, and I am very grateful. I have come to the position in which I dread to see a fracture. Compound fractures already have an indication to do what one is generally inclined to do, namely, to know how the ends of the bones stand. I believe the indication in the compound fracture after reduction fixation is first, as the reader of the paper has said, to provide for as nearly absolute drainage as possible. I think we may all conclude that a compound fracture is an infected wound when it comes to us. It is rarely ever in any other condition, so rarely that it may be taken that it is always infected. An infected wound will develop some micro-organisms which will in turn provoke an excess of fluid, whether it be pus or whether it be so-called serous fluid. If these fluids are dammed up inevitably they will press on the blood vessels and a thrombus will develop, and inevitably, if it continues, a necrosis will result. The indication then is to relieve the pressure as soon as possible and to prevent its recurring. Drainage as thorough as possible should be used. The great principle enunciated by the reader should be remembered, namely that gauze is not a drain for pus. You must provide tubular drainage, rubber, bone, or what not. I am, however, not quite in accord with the dictum that metallic plates should not be used. I suppose I am old fashioned in that I persist in using metallic plates with the greatest satisfaction. I have never yet believed that they added to the infection, nor delayed union in any way. They undoubtedly provide what is necessary, retention of the ends of the bone in reduction, and they give one the opportunity to carry out the other requirements of drainage and rest. Speaking of rest, I think we sometimes carry that principle too far. I do not believe that absolute immobilization is always necessary for the union of a fracture. I think I have seen delayed union caused from too long immobilization. Certainly cases of delayed union have seemed to improve by use of the extremity. At the same time some sort of appliance to prevent displacement of the bone should be used. That does not mean to encourage in ordinary fractures too early use of the part. When a fracture is freshly united too early function is not advisable.

I do not agree with Dr. Roberts (although I always get the worst of any disagreement with Dr. Roberts, he is so thoroughly equipped by anatomical and mechanical knowledge to substantiate any of his statements). I do not believe that distortion from fracture is to be treated by a set rule any more than pneumonia, typhoid fever, etc. Every case of fracture is a thing to be judged by itself. We must individualize every factor. Some subcutaneous deformities, as after Colles' fracture, and sometimes those about the elbow, may be corrected subcutaneously. I should hesitate to use Dr. Roberts' method, for instance, in the upper or middle part of the humerus. I think I have seen two or three cases of very serious injury of the musculospiral nerve after reduction without seeing what one is doing. It is not safe then to say that any one method is the proper one to use in certain fractures. I believe we must study each fracture with its own deformity and treat the individual case.

Dr. Edward Martin, Philadelphia: I do not agree with Dr. Roberts in regard to his belief in the cause of delayed union. As a rule, to which there is some exception, fracture unites in inverse proportion to the severity of the causes of traumatism; in direct proportion to the promptness and completeness of reduction, the absence of movement at the seat of fracture and the preservation of an active local circulation. Of the cases of delayed or nonunion that are brought to us there is usually a history of great trauma followed by extensive swelling due to blood effusion. The deep tension is often communicated by the formation of surface blebs. There is often a history of repeated attempts at reduction at intervals of a few days, these attempts always retard union and may prevent it altogether. Or there may be a history of inadequate splinting, usually one which allows movement of the joints proximal and distal to the fragment, hence involvement of the bone, and incidentally splints so tight that local circulation is seriously compromised. You have learned that the somewhat arbitrary classification of nonunion, including those cases which are not united in twelve weeks, has so many exceptions that it had best be forgotten.

On general principles we treat delayed union by a method other than that practiced while the delay was occurring: Some movement where there has been previously absolute fixation, absolute fixation where there has been previously movement, and always we seem to get best results by the use of Bier's congestion, since the formation of callus and its organization into bone is dependent directly on a free blood supply. In consequence of the general law by virtue of which union is in inverse proportion to the traumatism, we find delayed union in all fractures treated by the open operation, the delay being less in the case of gut or tendon suture, or when pins, pegs or screws are used, and most when strong metal plates are employed. It is the universal practice to record fractures by Roentgen-ray pictures which should be taken before reduction and after reduction and on the discharge of the patient from active treatment.

There are doubtless many cases of nonunion due to the surgeon's futile efforts at attaining without operation a perfect anatomical reposition. This, though desirable, is rarely essential. The main object in view is the preservation of function. A moderate shortening of the humerus produces no disability, the same is true of the forearm. The obliteration of the interosseous space produces a crippling disability. In the lower extremity weight-bearing is an important function. This implies a proper alignment of the bones. Shortening, though undesirable, is of no serious moment. The Volkmann's paralysis is rarely seen in fractures other than those involving the forearm or the arm. They are attributed, and rightly as a rule, to tight bandages. It is undoubtedly true that the tissues after break are at times extremely vulnerable and that to the most skilful this accident may occur, unless fracture in this region is daily inspected. Concerning Dr. Wainwright's remarks on drainage of compound fractures, the experience of the present war has taught us little except that the results are due not to any particular solution or to any particular method, but to the discriminating judgment of the man who wields the knife and places his drains and follows his dressings. There is perhaps a consensus of opinion concerning one method of treating infected wounds, the records as to the results of the continued bath, when this is practicable, are unanimously favorable.

Dr. C. E. Thomson, Scranton: I will have to disagree with Dr. Wainwright on a few essential points. I cannot agree with him on his statement that the fixation of a compound fracture in the first instance can in any way be traced as having originated with the surgeons of the present war. After many years of teaching and writing of men like Dr. Royal Witman on this particular point, namely, the fixation of compound fractures, it hardly seems fair to such men to give all the credit to the surgeons of the present war. Personally we have practiced this identical treatment for about a quarter of a century, but I must admit that we have failed in having it generally accepted by the profession. Therefore, I believe that the agitation and the attaching to it the endorsement of the war surgeons may be a great benefit if the profession generally can be induced to appreciate and practice it.

From Dr. Wainwright's paper I understand that he recommends it as the best and safest routine practice to assume that all compound fractures are infected or will become so if not subjected to some form of treatment other than reduction fixation and aseptic outside dressing. To this I cannot subscribe. It is very well known that a goodly number of our compound fractures, both made and acquired, will and do heal aseptically or with such a slight amount of infection as to be neglectable. And to subject such to irrigation or any other form of treatment, other than the application of tincture of iodin, closing the wound and dressing it as aseptically as possible and permanently fixing the fracture, would not only be meddlesome, but actually dangerous. As to his citation from Sir Berkley Moynihan and others concerning gauze drainage, "never yet was such a thing as a gauze drain" is a beautiful catchy phrase, but has the very serious objection of not being true, and in his next sentence Dr. Wainwright admits the same: "a gauze cork perhaps, and an inefficient one at that, but never a drain." There is no practical difference between an inefficient cork and a drain when we come to apply them to an infected wound. The practical indications for the drainage of a wound are, first, something that will keep the wound open and prevent healing; second, something that will allow exit of pus or other injurious fluids. Gauze will fill both of these indications. If a man presupposes that a surgical drain acts like water coming out of a faucet, then he deceives himself and others whom he tries to teach such fallacy. Having tried all forms of drainage, glass, cigaret, and rubber, in our hands at least, we have found gauze the safest and most efficient.

As to the suggestions about the coming method of fixation I must again differ from my friend. I have long since decided that the least possible manipulation together with the placing of the least possible foreign substance for the purpose of retaining fractured bones efficiently are the methods that will give the best results and in the end must prevail. And for this purpose plaster of Paris reinforced with steel or wood splints with the fractured limb in such a position to aid in retention (even though the limb is not straight, and must afterward be corrected) is the best and safest and applicable to the use of more surgeons than any other yet devised.

Dr. Moses Behrend, Philadelphia: In regard to immobilization of fractures I think this is the proper thing. We are getting the patients up too soon, giving them too much exercise. This has been my experience as being one of the great causes of deformed union. Dr. Estes admits that malunion results from too much use. Especially in those reaching puberty, patients come back to us with second fractures or horrible deformities and it is simply due to the fact that we have not immobilized long enough.

Dr. Roberts, closing: Time will come when one can go to the small hospitals and see how fracture work is done. I know, where I work, better organization of the hospital is needed. Dr. Lowman has fracture work well organized. Bad compound fractures sent in by the railroads are seen in large numbers by Drs. Estes and Wainwright. Simple fractures, as said by Dr. Thomson, often heal by very simple measures. Gauze will drain in my opinion serum but not pus. Gauze drains act very well if there is serum and the outside is kept moist so that the blood serum will not cake in the capillary fissures of the gauze. I believe with Dr. Estes that many of the open fractures should be plated. Plating is at times very valuable.

The point I wanted particularly to urge was refracture of malunited fractures. It makes me smile to hear Dr. Rugh say he could not break down these old fractures. From observation of his work at the Methodist Hospital I would say that he can break almost any bone if he applies his power in the right direction. He has not used, perhaps, the additional leverage obtained by bandaging a splint to the lower fragment and making the end of the lever thus longer. A block under the seat of fracture will allow a fractured thigh to be broken.

I do not think Dr. Lowman quite understood me when he said we would lose time if we did not open malunited fractures. Dr. Martin's idea that delayed union does not occur except in constitutional conditions reminds me of a curious case which occurred recently. A man was brought to me with ununited fracture of the bones of the leg. I put him in bed and gave him some lime salts. In a week he got dissatisfied and went home. He was so glad to go home that I did not hear from him for some time. His doctor lately wrote me that a great mass of callus had formed. It is possible that that man went home and became so happy at being with his family that callus began to form. It was not due probably to the lactophosphate of lime and carbonate of lime and fracture box for a short time, but some change in the man's tissues which made good callus-forming tissue.

Dr. Wainwright, closing: What we wish to do is to establish more efficient general principles for treating compound fractures. I think I have tried every plan I have read or heard about. In all the methods there have been so many cases that have been unsatisfactory that the method itself seemed to me unsatisfactory. I have tried the plan of Dr. Lowman of doing as little as possible, and the opposite plan where you do as much as possible and wash as much as you can into the wound. I have tried all the antiseptics in the Pharmacopeia. Tried them singly, in groups, all together, and one after the other. I have never dropped the patient or myself into these solutions, but we hear from the British Navy even that does not do any good. As Dr. Roberts says you will have 50 per cent. or more of compound fractures which are not infected under any plan. It is the remaining portion which does get infected and gives the disastrous results.

There are two general principles which I wish to bring out: The first is that the cases have got to be brought into the class of uninfected fractures if we are going to have success. The second point is regarding the fixation of the fragments. I do not mean to say that the question of fixation of fragments was brought out anew by the war, but it has been emphasized by the European surgeons and we have come to realize now that any good method of putting up any individual fracture must necessarily be such that the wound can be thoroughly dressed and at the same time that the fragments must not be moved. We must get by the plaster cast with a little window, we must get away from the fixation methods so lax that while we can reach the wound entirely every time we do this we are going to break up the progress toward union that has been made. In regard to the fixation of fragments I do not think the fact that a fragment has been held in perfect apposition and not allowed to move has ever been the cause of union not taking place. There is always a much more plausible cause for the cases. It may be, for instance, that the plaster cast has been too tight and not enough blood supplied.

A CRIMINAL EPILEPTIC WITH CONSIDERATION OF EPILEPSY AS A MEDICOLEGAL PROBLEM *

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Since epilepsy occupies a prominent place in medical jurisprudence, it is but just to the victims of this malady to remember that they constitute our most unfortunate class of patients and that the penal servitude at times imposed is most undeserving.

Without being responsible for their disease,

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* Read at the General Meeting of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 19, 1916.

epileptics are often unwelcome in their homes; because of the disturbance they may create in the class-room, the schools are not open to them; formerly, work was at times to be had, but now that the Workmen's Compensation Law is in force, employment is quite out of the question; most general hospitals receive epileptics only temporarily, and even the insane institutions look upon them as undesirable. While we are more enlightened than our forebears who considered epileptics as possessed of devils, it is regretted that these individuals are still regarded with so much aversion.

Can one imagine a more horrible affliction and is it to be wondered that the epileptic takes to brooding, becomes morose, suspicious, jealous and at times even criminal, since, as was well said, he is forced to some extent to develop upon the lines of the untutored savage? The providing of special hospitals and colony farms is relieving the situation, but unfortunately such institutions are too few.

The following record of a criminal epileptic is offered as illustrative of these remarks:

This individual as a boy was industrious and enterprising but he finally developed epilepsy and at about the same time manifested criminal tendencies. He is 29 years of age, a Hebrew and of Austrian parentage. There was no birth injury but as a baby he was not robust and probably had rickets. At 6 years of age measles developed and, his mother states, "he caught cold." For the three days following there was delirium and convulsions. An encephalitis probably complicated the infectious disease and this sometimes causes epilepsy, though the frank manifestations may be delayed for years as in this instance. Following the measles there developed a psychopathic state, shown by frequent and severe headache, forgetfulness with the gradual appearance of a restless, headstrong and impetuous nature. At 9 years the child entered school and, his mother states, he was an apt pupil. When 14, misconduct toward his teacher led to dismissal and soon after he began work; in the various positions held he was industrious but changeable. The cigaret habit was acquired early and soon three or four packs a day were consumed.

There is no history of theft until he was 17 years of age but stealing was then kept at so persistently that the boy was lodged in Moyamensing prison five times within a few months for the various crimes of stealing clothes, a clock, an express package, a bicycle and a roll of cloth. During his fifth detention he was removed to a reformatory and kept there eighteen months. The early epileptic manifestations were slight, making it difficult to determine the time of their appearance, but the mother is sure they began while in the reformatory. However, on his return home there were distinctly noticeable seizures in the form of frequent momentary losses of consciousness with more severe attacks appearing later. When 23 there was a brief period of mental aberration; the young man slashed all the fingers of his left hand with a knife, broke chinaware and was exceedingly quarrelsome and threatening toward his family. Unusual features, such as severe paroxysms of pain and the frequent appearance while awake of what is termed the dream-state, are not considered here. General convulsions did not develop until he was 28 years of age.

This individual was energetic and in spite of his infirmity persisted in efforts to earn a living but his work was a menace to others, it being the operating of elevators. If his disease had been known, work could not have been obtained, but often seizures were barely perceptible even when under observation. He was discharged a half dozen times from elevator work for "missing floors," "lack of attention," or some such trivial incompetency as it was supposed.

The young man came to my notice through application to the Pennsylvania Epileptic Hospital and Colony Farm, but later he said he would not go to that institution. I saw him several times and once in confidence he told me that his work was operating elevators. Numerous discharges had not discouraged him; he scanned the papers daily in search of employment and to keep him from such work his family were requested to notify any employer at once of his infirmity.

More than a year ago this individual stole some magazines from a newstand; he was promptly arrested and shortly following, papers were made out for commitment to a state institution; however, before admission, the thieving propensity again asserted itself and he stole a camera. Another arrest and appearance in court followed and the sentence of six months was imposed. The mother informed me that her boy had a distinctly noticeable epileptic seizure while before the court but it was thought he was feigning. And this possibly may have been a fact but he was an epileptic nevertheless.

The young man was irresponsible and did not belong in a penal institution. He was lodged in jail six different times when he was in urgent need of hospital care and one cannot help wondering how long such intermittent incarceration might have been kept up if some active interest had not been exerted in his behalf. When an epileptic commits murder and his disease is established he does not suffer capital punishment, nor is he lodged permanently in a penal institution, but the court orders him detained in our hospital for criminal insane where he belongs. I had hoped that this young man might be released from jail but he served his term of six months, though when discharged was very properly committed by court to a state hospital.

MEDICOLEGAL CONSIDERATION OF EPILEPSY

Since epileptics are distinctly antisocial, the medicolegal aspect of these individuals is important. Relatively, they are before the court more frequently than any group of patients, though absolutely alcoholics predominate. Certain medicolegal phases shall not be dwelt upon, as, for instance, accidents that are sustained while at work by those sufficiently artful to conceal their infirmity. There are a few who have attacks without the disease being suspected even by themselves. This especially may be true where seizures are rare and limited to the periods of sleep. It has occurred that in an attack the individual rolled over on his face and suffocated in the depths of a pillow; here, murder might be suspected. Contrary to one's expectation, epileptics, though afflicted with a horrible and often a hopeless malady, but seldom commit suicide, while homicides are relatively common.

Malingering.—Remarkable though it appears, those of us with large experience in insane and epileptic institutions know that a few inmates at times simulate their own infirmity. The criminal epileptic previously described was believed to be practicing this deception while before the court. Probably no disease is more frequently feigned and none are better suited to the purpose. The malady is most pitiful, in effect it is decidedly spectacular; it may be assumed at the most opportune time and may be dispensed with promptly. Counterfeiting is practiced chiefly to excite sympathy or to escape the performance of some irksome task. Years ago, a celebrated case was reported by Macdonald.[1] The patient feigned the disease so that his confederates could pick the pockets of those gathered round. Such deception was practiced fifteen years before detected; during this period many private physicians were deceived as well as those connected with hospitals, asylums and prisons.

Classification of Mental Manifestations.—For medicolegal consideration, mental manifestations may be grouped as follows: (1) Paroxysms in which the individual is not insane but in which he may be irresponsible, and these are (*a*) irresistible impulses or impulsive acts, and (*b*) the state of automatism; (2) paroxysms in which the individual is insane and here he may be (*a*) acting under the domination of an insane delusion, or (*b*) in a maniacal epileptic outbreak.

Irresistible Impulses.—Generally speaking, here the epileptic acts without motive; he may know the nature of the act he commits and yet be powerless to prevent its occurrence. We should remember that impulsiveness is in the very nature of an epileptic. At times the patient may have a hazy recollection of what has occurred, a state spoken of as a clouding of consciousness. The legal mind untrained in the abnormal is apt to regard an individual conscious of his acts as responsible for them, a view that may be absolutely wrong. Some epileptics are aware of the oncoming of this state and ask that they be restrained until it subsides.

Automatism.—While not confined to these individuals since automatism occurs among alcoholics, hysterical persons and degenerates, it is a much more frequent state among epileptics. Usually, automatic acts follow closely upon seizures, but they may occur just before or even between the attacks; generally, the act is trivial in nature, but at times complicated and serious performances are carried out. In fully developed automatism, it is essential that the individual be in a complete state of subconsciousness. Such a state is well illustrated by extracts from the record of a woman seen recently at the University Hospital, whose irresponsible periods constituted a troublesome feature of her disease.

Patient is 46 years of age, with attacks mostly nocturnal and generally followed by the state of automatism. Usually, the phenomenon is of about five minutes' duration and the patient but seldom recalls her doings. Recently, after a convulsion this individual was observed to go to her medicine closet when, failing to find what she was seeking by a feeble light, she lit the gas and examined the bottles until the vial of bromid was found; after placing some of the salt on her tongue, she swallowed it with a glass of water, then turned off the gas and slept till morning. The following day, finding her tongue sore, the patient asked her sister what her actions had been during the night. Once, in such a state, she lit a match and while trying to remove her hat from the box, the box was burned. This woman is not responsible for any act committed during these periods.

Acting Under the Domination of an Insane Delusion.—A few years ago in our state an epileptic killed several members of his family.[2] This unfortunate person was perfecting an invention, and while at work upon his plans became very secretive and suspicious; sometimes he would hide his diagrams in most unusual places. One night his brother saw him coming from their mother's room with an ax, exclaiming "Burglars, robbers"! He then attempted to kill his brother who finally overpowered him. The boy had already killed his mother, three sisters and badly injured another sister. While in jail awaiting trial, a patent was granted for his invention. At the trial, which was a purely formal one, his irresponsibility was promptly established. The case was reported as one of somnambulistic automatism, but there are some reasons for believing that the killing was done during an insane episode in this epileptic. The previous suspicious actions of the individual inclines one to the belief that he was impelled by an insane delusion; furthermore, epileptic insanity is apt to be precipitate and violent, in which respect the attack stands in marked contrast to the more quiet demeanor of the somnambulistic state. Similar occurrences must have come under the observation of Lewis,[3] who says: "Delusions of suspicion are a prominent feature before epileptic seizures in certain of the insane, and may form the incitants to acts of dangerous or homicidal violence."

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[1] Macdonald, C. F.: Feigned Epilepsy, Amer. Jour. Insanity, July, 1880, p. 1.

[2] McKennan and Walker: Homicide by a Boy During a State of Somnambulistic Automatism, Medical News, 1905, p. 149.

Maniacal Epileptic Outbreaks.—A paroxysm of exceeding brevity is recorded by Clouson.[4] It occurred in an epileptic whose disposition was gentle and considerate, but who, nevertheless, was subject to an explosive psychosis. Upon one occasion this individual and Clouson were of a party of four playing whist; suddenly, and without warning he dropped his cards, stared at his partner and then with eyes bulging out of his head and with a damnatory exclamation, he sprang across the table at his partner's throat. The patient was seized and held for a few minutes; upon recovering, he asked what had been doing and proceeded with the game. Doubtless most of us will agree that this individual was momentarily insane, but in such an opinion, courts are often loath to concur. The case is instructive and besides illustrating the brevity and suddenness that may characterize an attack, emphasizes what Spitzka[5] wrote years ago. He said: "It is an opinion quite prevalent with many, that the epileptic unless chronically demented, and aside from the period just preceding and following the attack and the attack itself, is always sane from a medical, and competent and responsible from a medicolegal, point of view." This, as the author states, is erroneous. Furthermore, though the individual is conscious of his act, if the power of self-will is inhibited, and sometimes it is, he should not be held responsible for its occurrence. Prejudice sometimes arises from the fact that epilepsy has been improperly set up as a defense.

COMMENTS UPON COMMITMENTS

About 10 per cent. of all epileptics from time to time have insane episodes which may require prompt detention, but we seldom see a permanent insanity except when the disease is of long standing and then chronic dementia is the rule.

Many epileptics have been in insane asylums for years. The official state report soon to be published will give more than 1,250 epileptics in our institutions for the insane. We have then this extraordinary situation; that many inmates who are insane only part of the time are detained in these hospitals all of the time. The insane period may be brief and but occasional, therefore, with the customary form of commitment such detention appears legally unsound.

In this state the usual manner of commitment for all classes of insane is upon a certificate signed by two qualified physicians who have acknowledged their signatures before a magistrate. From the standpoint of the committing physicians the method may be dangerous. The other and safer commitment is upon one of the several forms of court order. Of course, these epileptics are insane when committed; however, as a rule they do not remain in this state, but are subject to occasional insane periods. In the lucid intervals, which sometimes are very long, the usual commitment it appears does not sufficiently justify an institution in the detention of these patients.

An outbreak of epileptic insanity is usually precipitate, furious and often dangerous; therefore, prompt detention is imperative and for this purpose immediate placement in a psychopathic ward or commitment by the usual form may be necessary, but for a long period of detention the more secure form by court procedure is much the safer method.

The argument by no means is against detention, but is directed at the form of commitment upon which detention is made. If then the charge of conspiracy is brought, the responsibility rests with the court and not with the examining physicians. In my judgment the group of epileptic insane, for permanent detention, should always be upon an order of court and, since it may not be desirable to make a distinction, perhaps it would be better for the insane of all classes of any considerable duration, and where confinement is necessary, to be dealt with in this way.

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DISCUSSION

Dr. Hugh B. Meredith, Danville: I am sure I voice the sentiment of the society in commending Dr. Yawger's paper. The subject interests all medical men and often presents a very difficult problem. Epilepsy, of course, is a nervous disease. The mental condition depends largely on the onset of the attacks. Beginning in early life before the mental status has been established we have the condition of imbecility or idiocy. Later on by long continuance of the seizures mental vigor is lost. We then have a condition of epileptic dementia. The more common cases of epileptic psychoses, those in which the patient is irritable, fault finding, shows a marked degree of motor restlessness with impaired judgment, are the most difficult cases to care for. In these conditions of course, the person being of unsound mind, is irresponsible and could not be held for any criminal act. There are many cases that are vague, the so-called masked or psychic epilepsy, the subconscious condition that may occur as an intervallary state. The psychic epilepsies are the ones hard to determine. It is for the psychiatrist to determine the condition. If the person is mentally defective and irresponsible no punishment should follow a crime committed.

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[3] Lewis, W. Bevan: Mental Diseases, P. Blakiston's Sons and Co., Philadelphia, 1899, p. 261.

[4] Clouson, T. S.: Mental Diseases, J. and A. Churchill, London, 1904, p. 445.

[5] Spitzka, E. C. S.: Manual of Insanity, E. B. Treat, New York, 1887, p. 259.

The care of these cases is a matter of great importance. We have probably 2,000 epileptics in the state of Pennsylvania. Many of these people are cared for in our insane institutions and, of the number that have come under my observation, I have not found one who was not legally committed in accordance with our Lunacy Act of 1883 or committed by court. There may be short quiet periods, but at no time can they be considered in a normal condition. Institutions for the insane, however, are not the places for the care of these epileptics. What Pennsylvania lacks is an institution properly organized to care for this class of degenerates. We have in this state two institutions for the ordinary degenerate; we have one that is partially a state institution. One of these institutions receives epileptics and imbeciles. Why combine these two classes? The care of the ordinary degenerate is educational as well as custodial. We do not hope for amelioration in epilepsy; we do not know its cause; we know no cure for it and the usual termination of the disease is dementia. Therefore, why attempt to educate the epileptic? Anything learned would be lost by the dementia. I hold that we should have a special institution for the care of this class so organized that the patients can have special attention. I see no reason why the several classes of epilepsy could not be properly cared for under a properly organized and regulated institution. The difficulty presented in Dr. Yawger's paper is the recognition of the epileptic state which makes the person irresponsible. The study of the case may take a number of years to arrive at a conclusion, but the final finding must determine the mental responsibility.

Dr. William H. Carmalt, New Haven, Conn.: The state of Connecticut has endeavored to meet legally the care of epileptics in two ways, neither of which is absolutely efficacious. One of them, however, is fairly so. This is the establishment of a state farm for their care and treatment. If the patients are confirmed epileptics they may be committed to the state farm and kept there indefinitely. The other method is less satisfactory in its working. There is a law prohibiting the marriage of epileptics and the feebleminded by which the clergyman or justice of the peace performing such ceremony is fined $50. This legislation came about through the attempt on the part of certain officers in contiguous townships to shift the burden from one to another. Of course the domicile of a family is with the husband and when one township had the care of a poor woman who was epileptic and more or less feebleminded the officers would bring about her marriage with some more or less worthless fellow in a neighboring town, perhaps getting him intoxicated for that purpose. As a consequence the children of that union would be a burden on the second town. Unfortunately, so far as I know, no one has been fined for making these marriages though they occasionally take place still. The law acts however, as a moderate deterrent.

RINGWORM OF THE SCALP CURED WITH THE X-RAYS; REPORT OF EIGHTY-THREE CASES AND A SHORT RESUME OF THE AFFECTION *

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AND
JOHN B. LUDY, M.D.
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Ringworm of the scalp, because of its prevalence and the chronicity of its course, offers an interesting field for investigation. Although this paper deals particularly with the rapid cure of the affection by means of the Roentgen ray as compared with tedious and prolonged treatment by other means, it will prove instructive to mention, briefly, other phases of the subject. We will therefore discuss the frequency of occurrence of this disease as compared to other cutaneous outbreaks, etiology, clinical appearances of the lesions, the various methods of treatment, and the technic of Roentgen therapy.

In England *Tinea tonsurans* has been the most common of all skin diseases, comprising 13 per cent. of the total number of cases. McCall Anderson dissents from this high percentage, stating that in his experience there were but seven cases per thousand as compared with other cutaneous outbreaks, this applying to the scalp ringworm. Bulkley's statistics show 4.3 per cent. of ringworm. Between 3 and 4 per cent. of the thousands of cases tabulated by the American Dermatological Association were of ringworm.

The disease is more prevalent in male than in female children. According to Sequeira's tabulation there were 336 males as compared to 262 females. In our eighty-three cases, fifty-eight boys showed the affection and but thirty-five girls.

Ringworm of the scalp is caused by vegetable fungi consisting of spores and mycelium. It may be mentioned briefly that there are two main varieties, the small-spored fungus and the large-spored variety, although there are numerous subdivisions. The small-spored variety, of which the *Microsporon audouini* is the predominating type, consists of innumerable, small, round, translucent spores, adhering to the hair in irregular masses and found in the sheath of the same. The spores are 2 microns in size and are found entirely outside of the hair. The circumpilar sheath contains no mycelium, but the latter on examination may be seen in the hair running parallel to the axis in the direction of the hair bulb, above which they terminate like the end of a brush in what is termed the "fringe of Adamson."

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* Read at the General Meeting of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 20, 1916.

The large-spored fungus may be divided into two main varieties, depending upon whether the fungus is found within the hair, the endothrix type, or without the hair, the ectothrix. The endothrix variety is noteworthy in that it causes an outbreak in which there is an absence of inflammation and for the extreme chronicity of its duration. The spores and mycelium are found mainly in the hair. The spores are from three to four microns in diameter. The ectothrix fungus causes lesions which are marked by more or less violent inflammatory reaction, which ofttimes is sufficient to cause pus formation, sufficient in intensity to expel the hair with the causative parasite. This latter type is self-curative and any mild application hastens a rapid amelioration and therefore the x-rays or other radical measures are not necessary. The examination of the hair for fungus is extremely simple. A loose hair is extracted from the diseased area (no traction is required to depilate) and, placed on a glass slide, a few drops of a 10 per cent. solution of liquor potassii hydroxidi are applied; a cover glass is placed over the hair resting in the solution, and after allowing it to stand for a few minutes the spores are distinctly seen under the microscope.

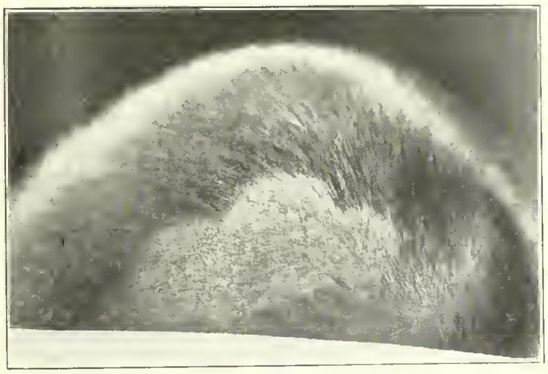

Fig. 1 (Case 1).—Typical ringworm.

Sequeira states that in 700 consecutive cases of ringworm of the scalp in children the small-spored fungus was found in 628 and the endothrix variety of the large-spored parasite in seventy-two. Colcott Fox found the endothrix type in 14 per cent. of his cases. Sabouraud, in Paris, found these figures almost reversed; one third of his cases were due to the small-spored fungus and the remaining two thirds to the large variety. According to Jackson and McMurtry, the *Microsporon audouini* (the small-spored fungus) produces ringworm of the scalp in from 88 to 90 per cent. of the American cases, and in London in from 78 to 96 per cent., depending on the epidemic and the investigator. The small-spored variety is rarely found in Italy and Germany. Our microscopic examinations concur with the American figures as to the percentage of ringworm cases caused by the small-spored fungus. The inflammatory, abscess-like type of ringworm caused by the ectothrix variety of the large-spored fungus is seen by us in about one case out of every two hundred ringworm scalp cases.

The diseased areas in ringworm of the scalp are of a round or oval shape, varying in size from a fraction of an inch to several inches in diameter; occasionally a large portion of the scalp is partially denuded of hair by coalescence of the lesions. The patches are usually covered by a fine ashen scale, through which many hair stumps emerge. The involved area has a "goose flesh" appearance; the follicles being unusually prominent. The hairs are held loosely in the follicles and pull out without traction. The incubation period of the disease is supposed to be three days. If the areas are untreated, the disease may last from infancy to adolescence and then disappear spontaneously. Ringworm of the scalp is a disease of childhood and is of the greatest rarety in the adult. The large-spored fungus is more apt to give rise to small patches, the reverse holding true in regard to the small-spored type. The most contagious variety of fungus is supposed to be the *Microsporon*

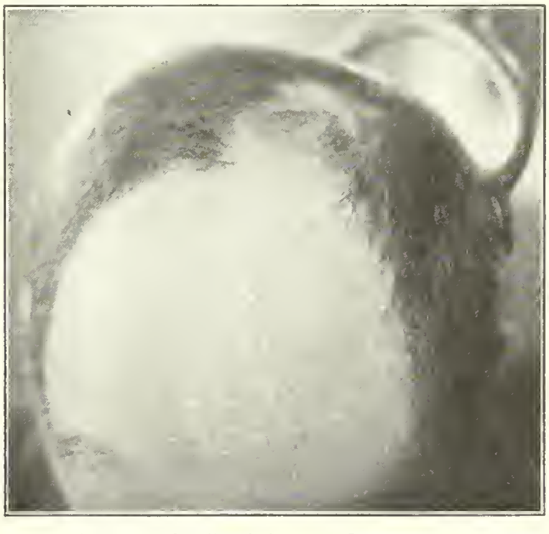

Fig. 2 (Case 1).—Depilated by one Roentgen-ray exposure.

audouini (small-spored type). Hair stumps, when removed from the diseased area, show, macroscopically, a peculiar grayish-white sheath, surrounding and closely adherent to the root portion of the hair, this consists of fungus.

The disease is readily distinguished from alopecia areata by the total baldness, unbroken and firmly attached hairs, lack of scales and absence of fungus in the latter; from seborrheic dermatitis by the reddened patches with greasy yellow scales, lack of broken-off and firmly attached hairs in the latter; from psoriasis by the sharply marginated reddish patches covered with silvery white scales, the unbroken and firmly attached hairs; from favus by the sulphur-color cups in the latter and the presence of an entirely different type of fungus; from erythematous lupus by the age of the patient, totally bald areas with wide open follicular mouths, the reddish color and the atrophy of the skin in the latter; and from baldness by the age, totally bald areas, lack of scale and broken-off hairs. Naturally in all of these various conditions the absence of the ringworm fungus proves that *Tinca tonsurans* is not present.

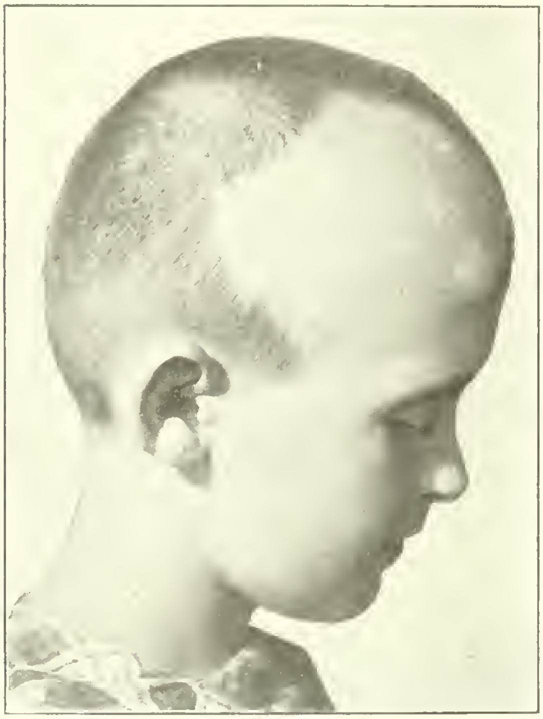

Fig. 3 (Case 2).—Depilation after one Roentgen-ray exposure.

The complications of ringworm of the scalp are impetigo, a disease starting as a pustule or vesicle and drying up into yellow, honey color, "stuck on crusts," furunculosis and subcutaneous abscesses.

The average case of ringworm of the scalp is curable by older medical methods in from six to nine months, and in certain instances a longer period is required. When the Roentgen ray is employed the patient is rendered incapable of communicating the disease in from twenty-five to thirty days after the exposure. In the treatment of favus the salve or lotion method had to be employed over a period of years while the Roentgen ray eradicates the disease after one thorough depilation.

The commoner medical remedies employed are sulphur, mercury (usually the bichlorid), iodin (commonly a 25 per cent. alcoholic solution), chrysarobin and pyrogallol. Exclusive of the Roentgen rays we have obtained the best results with the two following preparations: One dram of the crystals of iodin mixed with 7 drams of goose grease; and 20 grains of chrysarobin combined with an ounce of lanolin. Although numerous investigators have attempted vaccine treatment, Strickler is the strongest advocate of this method.

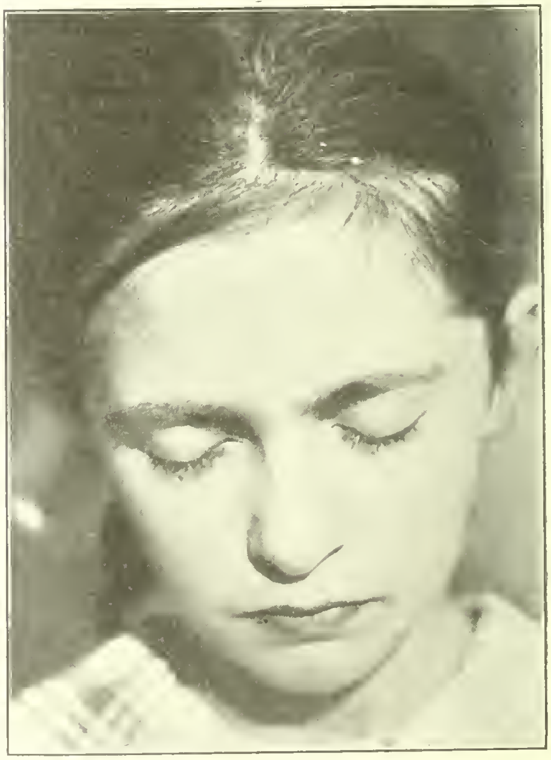

Fig. 4 (Case 2).—Hair entirely regrown.

Depilation by means of the Roentgen rays was introduced by Sabouraud in 1904; he described the method employed by himself and Noiré in one hundred cases with one exposure of each patch. Divided or intensive methods of treating this affection have been perfected by

Holzknecht, Kienboch, Adamson, Coolridge, MacLeod and MacKee. The three usually employed are those devised by Sabouraud, Kienboch-Adamson and Holzknecht. Tint B (Hampson's No. 4) of Sabouraud's scale equals five Holzknecht units which is the equivalent of 10 X units of Kienboch. We have employed Hampson's radiochronometer which is modeled after the Sabouraud scale.

The patient's hair having been clipped, if there is more than one patch, mark each one by drawing a circle about it with ink, and, after being exposed to the ray, mark with a cross to show that it has been treated. Each patch if isolated from the others is to be rayed in succession at the same sitting; the other patches being covered by lead plates to protect them from a double exposure. If there are many disseminated lesions involving the whole scalp, it should be marked off in segments and each section similarly treated. The patch should be six inches from the antikathode and held at the same distance by the tripod of the tube throughout the whole exposure. This spot must be exposed to the rays until the pastille assumes the color of tint No. 4 (Hampson). The length of exposure varies on different days and can not be fixed. Fifteen days after the exposure the hairs loosen and begin to fall. Three days later the scalp is given a brisk shampoo with sulphur soap; this is repeated for several days, after which time the area which has been rayed is usually completely bald. The area so treated remains bald for approximately two months, after which a fine downy growth of hair is observed. Total restitution of the hair is usually completed in four months.

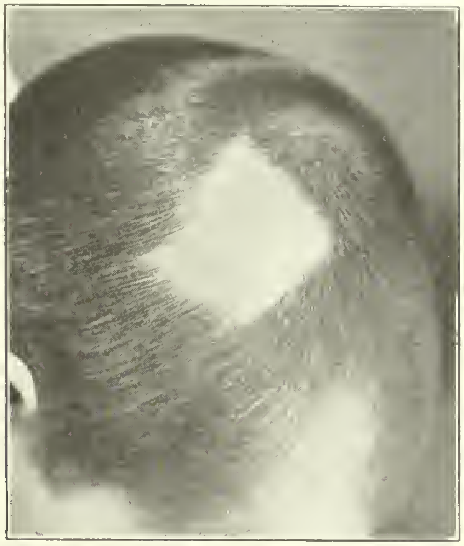
Fig. 5 (Case 3).—Depilating for ringworm; one Roentgen-ray exposure.

If the first exposure is insufficient to produce epilation a second seance may be necessary four weeks after the original exposure; the latter may be carried out without fear of producing permanent baldness. By using a hard tube the maximal safe dose may be obtained in seven minutes with the patient eight inches from the antikathode. A softer tube, which should always be used with the greatest care, changes the pastille to tint No. 4 with a shorter exposure. Depilation of the entire scalp was required in but ten of the eighty-three cases treated. Sabouraud has treated 2,000 cases by this method without any cerebral or intellectual symptoms arising therefrom.

The Roentgen-ray treatment of ringworm of the scalp is a step forward in the cure of an exceedingly chronic and troublesome affection.

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THE DUTY OF THE MEDICAL PROFESSION IN THE PROBLEM OF THE CRIPPLE *

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My message to you is really a plea for the education of the cripple while he is undergoing treatment for the correction of his physical deformity. Let us first, however, define what we mean by the cripple in this connection. We shall consider only the physically deformed, those in whom the mentality is normal. The mental cases do not lend themselves to this treatment and should be cared for by the state. It is true that in all cases of malformation which have existed for a period of years, especially in the younger period of life, there also ensues an obliquity of mind which is induced by the physical defect. The normal rate of development is retarded and the view of life becomes quite different from that of the normal child. Disease and accident during infancy and childhood impair the rate of growth and develop-

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ment and interfere with the normal functional activity which is so essential to their uniform progress.

The public interested includes the members of the immediate family, the relatives and friends, the responsible members of the community and the state in which the individual resides. The same obligations apply also to the nation, but here is a broadening of the subject which it is not germane to pursue.

From time immemorial, the cripple has occupied a separate and distinct place in the world's social scale. In various forms, he has been invested with occult and supernatural gifts and powers. In almost all periods he has been singled out as an object of especial attention, whether it be in the nature of regard, pity, veneration, hate, solicitude, fostering care or suspicion. The reason for this singular assignment lies in the hyperdevelopment of some one or two traits or characteristics so commonly seen in these defectives. This confers superiority over his associates, especially among the lower classes, and always suggests a supernatural power to this type of mind which looks for the mystic. This unusual mental attribute is viewed as the direct result of the accident, disease or deformity, because the latter is the most apparent factor. Hence he constitutes a distinct and separate class, which, by virtue of the uncertainty of the prevailing attitude of mind of the public, arrogates to himself certain privileges of conduct and behavior toward society that may not be gainsaid and that in turn is accorded him as an inherent right. The great variation in the type and form of disability has also contributed to the above station, as pity and compassion for the suffering of a member in a family softens the familial attitude toward any form of suffering in others, and as it is but a step from the real to the apparent, any crippled or disabled individual is included in the same class as their own afflicted one.

The fallacy of this physical standard is apparent when the mental state is considered. These patients have in most instances rather superior mental equipment or capabilities (due to the natural law that failure of one portion of the machine stimulates greater activity in another portion to preserve balance and accomplish results) and these possibilities should be held uppermost in the estimate of the social status of the patient. In our present organization economic efficiency has become the established standard and the quality and quantity of work accomplished determine each man's place in the world.

This immediately assigns to the cripple a place much inferior to or below that of the physically fit and he becomes of only minor or decidedly secondary importance in the great struggle for progress. The rush and hurry, the frantic striving and competition preclude his entering the ranks or the race and he is forced to drag along at his own maimed and crippled pace in an effort to reach the goal. If he loses heart and his ambition lags, he may throw himself upon the mercy and philanthropy of his family or the public and give up all effort at progress or self help. He thus proclaims himself a cripple, both mentally and physically. He becomes warped in mind as well as body and when this is accomplished the problem becomes social.

Early in the life of all of these patients there exists a naturally hopeful and buoyant state of mind which offers great aid to the physician or surgeon in his effort at correction of the deformity. This is usually the pre-puberty stage, before the child has become sensitive of its appearance and condition. He looks forward to the time when he will be physically the equal of his playmates and will cooperate with the operator in his every plan to secure desired results. This is the time and opportunity of the optimistic surgeon and physician. This is also the time and opportunity to fortify the mind against those unhealthy and baneful suggestions and impressions which gradually obsess it later by contemplation of the physical inferiority, or which may have their inception in the disappointment at failure to recover after time, pain and suffering from the efforts of the surgeon. This will follow as surely as the night the day if there is not proper fortification and preparedness. Organization of those educational forces which can be devoted entirely to this period of life of the child and stage of the disease or deformity is a crying need.

It is being attempted in various states and communities on a limited scale and the results are marvelous so far as they have progressed, but the means are so meager that the percentage benefited is extremely small. Surgery, and especially orthopedic surgery, has made such great progress in dealing with cripples that in almost every field or type of disability great improvement can be secured in the function of parts and physical betterment of the individual. This attainment of surgery is of itself sufficient incentive for philanthropy on the part of the public and state and the combining of these forces opens a prospect for relief to the cripple that is beyond his brightest dreams. Hopefulness is the watchword of every cripple and helpfulness should be the aim of every physician to him. With proper mental training during his earlier years of development that breadth of thought and depth of reasoning are fostered which insure a strength of mind and intellect that will safeguard against mental crippleization by disease and deformity. "A sound mind in a sound body" is not more true than its corollary, an unsound mind in an unsound body, and in many instances it does seem as though the latter relationship is even stronger than the former. Environment, social station, relationship and the personal type of mind of the patient all combine to aggravate the baleful influence of disease and deformity upon the intellect. On the other hand, it cannot be gainsaid that any or all of these forces can be counterbalanced and overcome by healthy and persistent effort of those associated with him, and if the patient himself can be stimulated to similar effort and endeavor the future is assured. The dependent will be changed into the independent, his status in the social plane will be raised and he will become an economic factor of worth and a unit of efficiency in the organization. The physical should be, and in the vast majority of cases can be, improved, but the mental must be developed and guided into the channels of proficiency so that it shall either aid or supplant the deformity.

The public in this problem presents a complex study. It stands in the position of responsibility for the care, supervision and ultimate control of these patients while at the same time it is in almost complete ignorance of the nature and scope of the trust. So completely has the sufferer been left to his own devices and so accustomed has he become to working out his own problems that society has not awakened to the great needs, the fearful economic loss and important part it should assume in this great problem. It is true that sporadic efforts have been made with very great local benefit, but a widespread agitation has not yet seized upon the people. The relationship of the public to the cripple is both personal and general according to the occurrence of cases in the family, community or the state. The obligations are of the same character because of the interrelationship of individuals and the state. The care of the dependent falls to the family, to the community or to the state according to conditions, and in the latter case the duty of the citizen is humanitarian in the broadest sense of the term. Isolation has for years been the rule, but with the advance in surgical achievement and the promise of improvement which it affords, the public has been stimulated to new fields of endeavor in the desire and attempt to aid in the improvement and development of the cripple. The work waiting for it is limitless in its scope and possibilities and concerns first the development and establishment of educational facilities for these afflicted ones. To place them side by side with the normal healthy child and expect them to keep pace in educational progress is to induce failure in a great majority of instances. The contrast proves dispiriting, the odds are too great, the difficulties are too disparaging and the strain of endeavor is too much for the physically impaired individual to endure. The burden must be made commensurate with the strength of the back, the mental demands must be tempered by the physical ability, and this can only be accomplished by special instruction and special schools. The founding of these belongs to the state, but thus far most have risen through private philanthropy and beneficence. The education of the public to this great need has begun, but it is slow and laborious.

Secondly, the work of the public is to support the efforts of the medical profession, which to date has been practically the only body to recognize the possibilities of the movement. The medical man appreciates fully the warping effects of the twisted body upon the intellectual processes, but is in many instances helpless to do more than correct or benefit the physical defect. If only the public could be aroused to the great need of its cooperation in this respect much good could be accomplished. A demand on the part of society for such equipment and opportunity for treatment of the mind, at the same time that the body is being corrected, would be promptly considered by the department of education and if the demand was sufficiently strong and persistent, something would be done by the state. Beginnings have been made in certain places as the result of the efforts of a few individuals, but these would be very greatly increased if the need was given wider support. The failure of the community to appreciate the great economic loss it sustains in the cripple is at the foundation of its lethargy. In this direction lies one of the great fields of work for the physician. His relation to the public is in the rôle of teacher and instructor, and to the cripple is that of benefactor and restorer to functional or physical efficiency. The first duty, of course, is to the patient and the field is a broad one.

The possibility of relief in the great majority of cases is limited only by the skill and ingenuity of the surgeon. He, therefore, must be resourceful, progressive and confident. He must be optimistic to an extreme degree and must possess the ability to infuse his optimism and confidence into the patient and his family, since time, the one most essential factor in the correction of deformity, tends frequently to shake confidence. The surgeon must be able to view the cripple like the famous sculptor of old, who, after gazing upon a huge block of marble, exclaimed, "I see an angel in that stone," and with his mallet and chisel he set to work to release it. The surgeon must see symmetry, balance, function, form and efficiency in the distorted body, the twisted legs, the misshapen feet, the useless hands, the dangling arms and the diseased joints. He must also take his tools as did the sculptor and restore the imperfect to that degree of efficiency which will make the dependent independent and will enable the cripple to take his place in the ranks of the wage earner. The mental uplift of such relief to the patient is tremendous. The vista of a life of usefulness, independence and greater or less activity begets the greatest possible mental stimulus and under its influence progress along intellectual or vocational lines is most rapid.

Naturally, also, of equal importance with his endeavor at correction and restoration of the cripple is the work of prevention of the disabling effects of disease and illness. Not infrequently one sees cases of distortion following disease and injury which should never have been permitted to occur, and proper care of these patients will limit the number of cripples to a considerable degree. Prevention is easier than cure in these cases and is a most important function of the physician. This may concern the direct care of the patient or it may involve proper instruction of those in charge of him. How often do we hear the plaint, "the doctor never told me to do that, or the danger of it," and the results are just as disastrous here as in many of the moral problems we are called upon to face. The relationship with the patient and family is so personal and intimate that he is really the mentor in the ultimate outcome of the case and its future prospects. His responsibility is great, but his interest and ability should be equal to the demands so that the best results may obtain to the patient. He must be able to instruct and to divert both patient and friends. He must emphasize the great necessity of mental growth keeping pace with physical improvement. If the amount of possible gain in the physical is slight, he should be able to recognize this or ascertain it from competent sources and then insist upon the greater importance of education as an offset to the bodily defect. He must see that the training proceeds without strain and that the demands are commensurate with the patient's abilities. Such ends can be secured only by personal attention on the part of the parent or instructor or in schools specially conducted and organized for this class of children.

If each physician will but add to his duties the determination to do just a little more for these distorted and maimed individuals, especially in the way of awakening the public to their needs, he will not only help to render them independent but will also render a great service to the family, the community, and the state.

1616 Spruce Street.

DISCUSSION

Dr. G. G. Davis, Philadelphia: The problem of the cripple is a serious one and difficult of solution. Dr. Rugh has called our attention to it in a comprehensive manner and pointed out our duties to the patient, his family and the community. I think the cripple may, with some justice, be considered a menace to his community. Savages have so regarded him to such an extent as to deliberately kill and so relieve themselves of the burden of maintaining him. If we have a better way of dealing with him it is our duty to see that it is made known and carried out. I am somewhat inclined to reverse the order of importance as submitted and place the welfare of the community first, the family second and the patient last. We, as medical men, are sometimes inclined to be too narrow and consider the patient only. It tends to make us insular, provincial, conceited, selfish and so impairs our judgment as to cause our opinions to be held in scant respect. It is as if we lived in a very little town and contented ourselves with reading a very little paper that confined itself to local news. The cripple is a menace to the community, to his family and his condition even reacts on himself.

The medical profession must show the community how to act toward cripples, it should teach the parents how they should be raised and it should, by medicine and surgery, eliminate as much of the crippled condition as possible and superintend the education of the cripple himself. Are we doing this? Certainly not to the extent we should. We see the community, instead of helping, deliberately hindering our efforts to make the cripple self-supporting. Business men, not infrequently, will not employ a cripple no matter how skilful and efficient is his work. Let us teach the public to help by employing the crippled after we have fixed them up and educated them. The public must be taught to do its share. The family must be taught to do its duty. Now it frequently fails utterly—often a cripple becomes a family pet, pampered, spoiled, ignorant, lazy and selfish. Parents need to be taught how to raise their crippled children so that they realize their duties and strive to perform them. They should have inculcated in them the same virtues of application and self-denial as are insisted on in their non-crippled brothers and sisters. Finally, while we will do all we can to improve the cripple's physical condition we must also impress on him that it is his duty to elevate himself, as much as possible, to the plane occupied by those not crippled.

We should encourage and aid him in achieving this object.

I am firmly convinced that the attitude of the public to the cripple and his position in the community will in the near future be much better than it now is. There is little doubt but that, with intelligent effort by the profession, the family and the community, nearly all our cripples can be made self-respecting and largely self-supporting members of the community and it is just such papers as the one we have listened to that will show the way and hasten the time when this shall be the case.

DR. C. W. DELANEY, Altoona: When I first started this work in the Altoona Hospital, we were up against the proposition of supplying braces for cripples who needed them. I finally decided to present the matter to some women's organization. We have an active Sunshine Society and they entered into the work and supplied more money than we could possibly use in supplying braces. We have a Hawley table, an Albee saw and many other things we needed. During the first year of the work, which started seven or eight years ago, we spent between $200 and $300 for braces and then I thought of the mental side of the work and we organized what we term the Junior Auxiliary, young girls who come to the hospital and have story hour with the children and entertain them several times during the week. They gave benefits later on, increased their work and supplied a solarium, supplied story books, and their work was remarkable in the interest they showed in it. I think if we encourage local organization we can accomplish in our little communities just as much as we do in the cities. People are always willing if the matter is presented to them in the proper fashion and they take up the work and develop it far in excess of what your fondest expectations might be. If at any time finances run short it is an easy thing to interest business men and we have now business men who contribute eight to ten dollars every month for braces. Braces are used less and less and I find in my work reeducation is necessary, not braces.

Then you can interest them in making the wards in the hospital more homelike by having the walls decorated, by making the service to the children such that they will never forget their stay in our institution. Along these lines we need not always expect the state board to help us out.

DR. RUGH, closing: The education of the public is of equal importance with the improvement of the physical condition of the child, and the efforts made in one community and another simply bear out what we are contending for, that results will inevitably follow the efforts of the physician to educate the public. That is my plea to the medical profession of Pennsylvania, the education of the community in which they live for the care and the mental training of these individuals.

DOMESTIC DON'TS

Don't quarrel.
Don't deceive a child.
Don't snap and snarl.
Don't be loud mouthed in the home.
Don't expose your anger to a child.
Don't see everything the child is doing.
Don't find fault with the mother in the presence of her children.

THE TYPES OF PNEUMOCOCCI IN INFANTS AND CHILDREN *

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The researches of Dochez and Gillespie,[1] Dochez and Avery,[2] and Cole[3] on the classification of pneumococci by immunologic reactions are well known. Their investigations in adults have served to establish the proportion of types, and the mortality of individuals infected with these different types.

The great importance of this subject is now recognized. A clear idea of what is meant by separating the pneumococcus into groups may be obtained by quoting Cole:

> "Most of the cases of acute lobar pneumonia occurring in all parts of the world are apparently caused by the *Diplococcus pneumoniæ.* Certain observations, however, indicate that all these cases that are apparently due to pneumococci do not have an identical etiology. Certain ones are due to the *Pneumococcus mucosus,* first described by Schottmuller as *Streptococcus mucosus.* Moreover, on the basis of immunologic differences, it is possible to classify the other pneumococci in three groups. In two of these groups which we have numbered Types I and II, have been placed organisms having immunologic characters peculiar to the respective group. All the organisms belonging to Type I, for instance, are agglutinated by a serum produced by the immunization of an animal to any one of them, and such an immune serum also protects mice against any one of the group. In Group III are placed all the organisms of the *Pneumococcus mucosus* type. These organisms are not agglutinable, and an immune serum does not protect mice against them. In addition to the organisms belonging in these groups, however, there are a number of organisms which have no common immunologic characters; each one appears distinct. These organisms have been grouped together as Type IV."

The present study was undertaken with the idea of ascertaining if the same types were present in infants and children suffering from pneumonia, as in adults. Up to the present time there seems to have been but little such work done. Pisek and Pease[4] determined the types in 48 children under 6 years of age with the following results:

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* Read before the Section on Medicine of the Medical Society of the State of Pennsylvania, Scranton Section, Sept. 19, 1916.

* The expenses of this study were defrayed through the generosity of Dr. Rufus I. Cole, who returned the honorarium for the Frederick A. Packard Lecture, delivered before the Philadelphia Pediatric Society and the Rush Society in November, 1914.

The examinations were performed in the Research Laboratory of the Henry Phipps Institute. The author wishes especially to express his appreciation to Dr. Paul Lewis under whose guidance the immunologic reactions were carried out; without his instruction this work would not have been possible.

The cases reported were admitted to the wards of the Children's Hospital on the services of Dr. J. P. Crozer Griffith, Dr. Alfred Hand, Jr., and Dr. J. C. Gittings.

[1] Jour. A. M. A., 1913, lxi, 727.

[2] Jour. Exp. Med., 1915, xxi, 114.

[3] N. Y. Med. Jour., 1915, ci, 1.

[4] Am. Jour. Med. Sci., 1916, cli, 14.

	Cases of Lobar Pneumonia	Cases of Broncho Pneumonia	Percentage	Percentage Mortality
Type I	9	2	22.9	9
Type II	11	3	29.3	36
Type III	1	3	8.3	25
Type IV	7	12	39.8	21

Morse,[5] in reviewing the literature on pneumonia for the last ten years makes mention of unpublished investigations by Dunn, who found that the organisms present in pneumonia in infants belong almost entirely to Group IV (Type IV).

In babies it is impossible, and in children ill with pneumonia it is impractical to collect sputum with the voluntary assistance of the patient. In spite of the apparent harmlessness of lung puncture reported by several observers it was not deemed justifiable to employ this method routinely. Throughout this series, therefore, a curved copper wire supplied with a generous swab of sterile cotton was held in the pharynx until coughing excited the expulsion of pulmonary mucus.[6] The swab with the attached mucus was plunged into about five cubic centimeters of sterile bouillon. One c.c. of this thoroughly mixed emulsion was injected into the peritoneal cavity of a mouse. The technic followed from this point was practically identical with that recommended by Cole in his work at the Rockefeller Institute. In this connection it should be mentioned that the greatest stress was laid on the gross agglutination at the end of an hour. In the identification of the pneumococcus, digestion by bile was used in the first thirty cases. Thereafter the cultural characteristics, and in cases of doubt the morphologic and staining peculiarities were studied. No cases were included if the bouillon culture showed tendency to agglutination with more than one type of serum.

Ninety children with pneumonia were studied in this manner during the winters of 1914-15, and 1915-16. In eleven of these, the disease was diagnosed as bronchopneumonia and the remainder as lobarpneumonias, from their history, temperature curve, and physical findings. All showed definite pulmonary consolidation. With one or two possible exceptions, none were secondary, or terminal pneumonias. The average age was about two years and three months, only six of the patients were over six years of age, and sixty-two were under two years, of whom six were six months or younger.

The 150 cases reported by Cole are fairly representative of the average percentages found in adults. Studies by Richardson in Philadelphia and Walker in Boston give practically similar findings to those of Cole.

The most striking point in the comparison of these two series is the difference in number of fixed types (i. e., I, II, III), the adults showing 79 per cent., and the children only 25.5 per cent.

Ten patients were infected with Type I pneumococcus. Nine were lobar pneumonias, and one was a bronchopneumonia. None of these died. Only one case developed a complication, and this consisted of otitis media. The average leukocyte count was 31,700.

Ten patients were infected with Type II pneumococcus. They were all lobar pneumonias. Two (20 per cent.) died. Here also the only complication was otitis media in one case. The average leukocyte count was 30,800.

TABLE I—FREQUENCY OF TYPES

	Type I	Type II	Type III	Type IV
150 cases in adults (Cole)	38%	30%	11%	21%
90 cases in infants and children	11.1%	11.1%	3.3%	74.4%

TABLE II—MORTALITY OF TYPES

	Type I	Type II	Type III	Type IV
103 cases in adults (Cole)	25%	32%	47%	6%
87 Cases in infants and children	None died	20%	33.3%	10.9%

Three patients were infected with Type III pneumococcus. They were all lobar pneumonias. One fatal case was an extremely toxic child, who developed meningitis. (The organism causing the meningitis was not isolated.) The second patient recovered in spite of the development of measles, followed by gangrenous purpura. The third patient recovered, although his pneumonia was complicated with osteomyelitis of the femur. (A streptococcus was isolated from the pus evacuated from the femur at operation.

Sixty-seven patients were infected with Type IV pneumococcus. Fifty-seven were lobar pneumonias, and ten were bronchopneumonias. Eleven died. In three of these the unfavorable termination was contributed to by some extraneous factor such as coincident pyloric stenosis, tuberculous meningitis or pyelitis. It seems, therefore, that the mortality may be more fairly shown by stating that of sixty-four patients, seven (10.9 per cent.) died. Three of these deaths were in bronchopneumonias. Six of the sixty-seven cases were complicated by empyema; four by otitis media; two by serous meningitis, and two by pneumococcic meningitis. The average leukocyte count was 25,300.

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[5] Boston Med. and Surg. Jour., 1916, clxxiv, 131, 165.

[6] It has been shown by Dochez and Avery that the pneumococcus harbored in the throat of the normal individual is invariably a Type IV organism. Arguing from this it might be thought that this way of collecting sputum may result in a lower percentage of the fixed types. Indeed in one of the cases in the present series a Type IV pneumococcus was isolated from the sputum, but on the child developing an empyema the organism obtained from the pleural fluid proved to be Type I. However several cases studied two or more times during the febrile stage constantly showed the same type.

No definite relation to the different types could be established with regard to age, sex, extent of pulmonary involvement, or toxicity of the patient. Seasonal distribution played no discoverable part in infection with the different types.

No attempt was made to treat any of these cases with serum.

CONCLUSIONS

1. The so-called fixed types of pneumococci are of infrequent occurrence in infants and children as compared with adults. Of ninety children, 11.1 per cent. showed Type I; 11.1 per cent. showed Type II, and 3.3 per cent. showed Type III.

2. The pneumococci without definite agglutination reactions, and classed as Type IV, are of more frequent occurrence in infants and children than in adults; 74.4 per cent. of ninety children showed Type IV pneumococci.

3. The mortality of infants and children infected with the fixed types (I, II, III) seems to be lower than in adults. Of eighty-seven children, none infected with Type I died; 20 per cent. infected with Type II died, and 33.3 per cent. infected with Type III died. Infants and children infected with Type IV have a slightly higher mortality (10.9 per cent.) than adults. The number of cases presented is rather small to draw definite conclusions concerning the mortality of the different types, inasmuch as relatively few cases were infected with Types I, II and III.

4. The fixed types occur at all ages from six months to eleven years.

5. Type IV pneumococcus often causes as severe an infection as the fixed types. Type I seems to cause a mild infection.

6. Type IV is the most frequent infecting organism in bronchopneumonia, although the fixed types may also be found. Of eleven cases of bronchopneumonia, ten were caused by Type IV pneumococci, and one by a Type I pneumococcus.

7. Complications are more frequent with Type IV infection. Of ninety children, all the severe complications (empyema and meningitis) were in those infected with Type IV pneumococcus.

Since this article was prepared Wollstein and Benson[7] have reported a study of fifty cases of pneumonia in infants and children. Only eleven of these children had lobar pneumonia. These authors, however, found a high percentage of Type IV organisms, especially in bronchopneumonias.

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[7] Am. Jour. Dis. of Child., 1916, xii, 254.

THE SPECIFIC TREATMENT OF ACUTE LOBAR PNEUMONIA *

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Specific treatment of a disease is usually understood to mean treatment directed toward the destruction or inhibition of the growth of the etiologic agent in the body, or neutralization of the injurious substances produced by this agent.

Before a specific treatment is possible, it is usually necessary that something be known of the causal agent. Thirty-five years ago the general features of the common etiologic agent in pneumonia were described. But, while this knowledge was of importance in making clear our conception of the disease, still more knowledge was required to make specific treatment possible. Inflammation of the lung involving entire lobes may be caused by other organisms than pneumococcus, just as a pharyngitis may be caused by other bacteria than the diphtheria bacillus. Such other organisms carrying lobar inflammation of the lungs are streptococcus, staphylococcus and Friedlander's bacillus, and, in our experience, 5 per cent. of the cases diagnosed lobar pneumonia are due to such organisms. As with diphtheria, moreover, before specific treatment was possible, methods were required for determining in each individual case the organism concerned. Up to a very recent time no effort had been made by clinicians to determine in each case of lobar pneumonia the organism causing the infection. So long as specific treatment is not possible, an etiologic diagnosis in each individual case is not so important, except from the standpoint of prognosis. As soon as we come to consider the possibility of specific treatment, however, such etiologic diagnoses become imperative. As concerns pneumonia the matter is complicated by the fact, discovered first by Neufeld and later more fully investigated by us, namely, that as regards immunity, pneumococci are not all identical, but different races of bacteria show distinct specific differences; one pneumococcus may no more resemble another than a diphtheria bacillus resembles a typhoid bacillus. Morphologically, and in their cultural characteristics, they are all alike, but as regards immunity reactions they may be vastly different.

With our present knowledge, specific treatment of any infectious disease may be of two

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kinds. First we may make use of complex chemical substances which have a specific action in destroying the infectious agent, such as quinin in malarial infection, or complex substances such as atoxyl in trypanosome infections or salvarsan in spirochetal infections. These chemical substances do not depend at all for their efficacy on any immunity reactions, and therefore frequently act on groups of closely related organisms. Such a drug effective against pneumococci, therefore, would probably be active against all races, and I shall later speak of such a drug.

The second method of specific therapy makes use of the substances or reactions upon which immunity in the animal depends, and which in pneumonia are undoubtedly responsible for natural recovery from the disease. This method can be effective only if the substances employed are identical with those formed during the reaction with the same race of organisms as that which is responsible for the individual case treated, for immunity reactions are specific in a remarkable degree. As I have stated before, all races of pneumococci are not identical. It has been possible, however, to place many of them in definite groups so that all the members of each group are identical, and therefore for therapeutic purposes it is only necessary in the individual case to determine to which group the organism present belongs. This separation into immunological groups was done in the following way. A large number of races of pneumococci from cases of pneumonia were isolated. Rabbits were then immunized to each one of these races by repeated injections of dead, then living, cultures. The sera of these different rabbits were then tested against all of the strains. This was done by means of the agglutination reaction and also by studying the protective power of the serum, employing mice for this purpose. It was found that the serum of one rabbit, which we will call Rabbit A, acted against a number of the races, but against the others it had absolutely no effect. Moreover, the sera of all the rabbits which had been immunized to the races against which (A) serum was effective, were effective against the organism (A) which had been used for immunizing Rabbit A. In other words, all the sera and all the organisms of this group mutually reacted, but there were no reactions with the other pneumococci or with the sera produced by inoculation of these other pneumococci into suitable animals. In like manner it was possible to separate a second group of organisms. These two groups of pneumococci we have called Type I and Type II. It was then found that a third group of organisms existed which differed from the preceding two groups, not only in immunological reactions, but in the possession of larger capsules than the others, and in producing very sticky mucous exudates in animals. These have been named *Pneumococcus mucosus,* and in our classification are included in Type III. Finally, there are a number of organisms which not only do not fall into any one of these groups, but differ among themselves; immunologically, each race seems to be perfectly distinct, and so far it has been impossible to make any subdivision of this group on immunological grounds. This group has been called Type IV. It is of interest that these latter organisms are like those found in normal mouths.

These facts in regards to types are of fundamental importance. The specificity of type makes it absolutely essential that the type of organism concerned in each individual case be determined, in order that the principles of immunity be called upon to aid in treating the disease. Methods for this purpose have been devised, and it is now possible to determine the type of pneumococcus concerned in any case within a few hours after the case comes under observation. The method is as follows: A small portion of sputum coughed up from the lung is injected into the peritoneal cavity of a mouse. After the organisms have developed, the peritoneal cavity is washed out with salt solution. The washings are then centrifugalized for a short time to remove leukocytes and other animal cells. There then remains a suspension of bacteria. To small portions of this suspension immune sera I and II are added. If agglutination occurs in either mixture we know that we are dealing with the type of organism corresponding to the effective serum. If no agglutination occurs, the organisms are of Type III or IV. Type III organisms can usually be detected by direct examination of the peritoneal exudate.

Theoretically, there are at least two ways in which the principles of immunity as now understood can be employed in aiding recovery from pneumonia. First, we can possibly aid in the development of immune bodies in the patient by attempting to stimulate the patient to produce such immune bodies more rapidly and in larger amounts than would be the result of the natural infection, unaided. The only conceivable method at present to produce this result would be the administration of vaccines. From experimental studies in the production of immunity, it does not seem likely that in a disease like pneumonia, running a very short course, this method of procedure would be likely to be followed by satisfactory results. A considerable number of attempts to treat pneumonia in this way have been made, not, however, with knowledge of differences of type, and with proper application of this knowledge. We have made certain efforts to cause a very rapid development of immunity in animals, but so far the results have been negative. Moreover the published results which have been obtained with the cruder methods of vaccine therapy have not seemed to be encouraging, and in the absence of experimental justification, we have not pursued the method further.

The second method to be employed is to transfer the immune substances, produced in the serum of experimental animals, directly to the patient, supplying him with immune bodies at a time before he has been able to produce his own immunity reactions. This is the method we have employed. The experimental justification for this method is as follows. If an animal, such as the rabbit, the sheep, or the horse, is immunized by the injection of repeated and increasing doses of pneumococci, the serum of this animal acquires the power of agglutinating and to some extent inhibiting the growth of pneumococci of the same type. It also acquires opsonic power. More important than this, however, when a very small amount of such serum is injected into a susceptible animal, such as the mouse, together with a dose of the bacteria which would certainly, without the addition of the serum, cause the death of the animal, the animal, instead of dying, shows no ill effects from the injection. Such small doses of serum may not only protect against one lethal dose of the culture, but may protect against many thousand times the lethal dose. Second, such serum may protect not only when the serum and cultures are injected simultaneously, but if the amount of culture be not too great, and the injection of serum be not too long delayed, curative results may be obtained, even in such susceptible animals as rabbits. Moreover, the development of immune substances in the blood of the patient is probably responsible for his natural recovery. At any rate, studies of the blood of patients have shown that at the time of crisis, or when recovery is occurring, such immune substances appear in his blood, and death of the patient seems to be associated with his failure to form such immune bodies.

It seems logical, therefore, to attempt to aid the patient by the administration of such immune serum. This, therefore, has been our method of procedure.

The immune sera have been obtained from horses. The method employed in immunizing the horses at first was that which is commonly employed in the production of other therapeutic sera, namely, the intravenous injection every seven to eight days of the bacteria, beginning first with killed organisms, gradually increasing the dose, and then proceeding to the injection of living organisms, at first in very small numbers, and later in larger amounts. This is a slow, time-consuming procedure, and the injection of living organisms not infrequently is followed by the death of the horse. Lately we have adopted a new method which seems very promising.. In this method only dead organisms are used, and the injections are made every day for seven days. Then no injections are made for the following seven days, when the injection of dead organisms, in slightly larger amounts, is resumed. Repeating the method over and over, first seven days of injection, then seven days of rest, increasing the size of the dose each week, it has been possible in a period of six to seven weeks to obtain sera of as great potency as any we have previously obtained using the older methods.

Employing these methods, it has been possible to obtain serum against pneumococcus of Type I which, as tested in animals, is of very great strength; 0.2 c.c. of such a serum will protect a mouse against as much as 0.1 c.c. or in some cases 0.4-0.5 c.c. of a culture, of which 0.000001 c.c. when given alone, without the serum, will certainly kill. A serum has also been obtained against organisms of Type II, but this is of somewhat less potency. By no method have we yet been able to produce a serum against Type II organisms which is experimentally so active as that which we have obtained against Type I organisms. Up to within a very short period we have thought it impossible to produce a serum which could protect mice against organisms of Type III. We, however, only attempted this in rabbits, goats and sheep, and, since our results were negative, did not employ horses for this purpose. More recently, however, the New York State Board of Health, under Dr. Wadsworth's direction, notwithstanding our failure with small animals, proceeded to immunize a horse, and sent us some of the serum, and to our surprise we found not only that it was specifically agglutinating, but that in addition it would protect mice, not in so high multiples of the minimal lethal dose as do the sera of the first two types, but still of sufficient potency to show that the production of specific immune bodies is not impossible in this type of infection. Lastly, it is possible to produce an immune serum against any given race of Type IV, but as such a serum is effective only against the single race used for immunization, such a serum could obviously not be employed for therapeutic purposes.

There have been produced, then, a serum of high potency against organisms of Type I, a serum of less potency against organisms of Type II, and a serum of very slight potency against organisms of Type III. So far as the clinical application, therefore, of immune serum is concerned, the question resolves itself into the question of the possibility of serum treatment in cases due to pneumococci of Type I and II. Experimental studies have indicated that such antibacterial sera can only be effective if they are given in large amounts, sufficient to obtain a considerable concentration of the immune bodies in the blood of the patient. Moreover, such sera are much more likely to be effective if they are administered early in the course of the disease before the concentration of bacteria in the body has become too great, and before the body has become so affected by the intoxication that death may occur from the havoc already done, even if further growth of the organisms be inhibited. We have, therefore, given the serum intravenously in very large amount and have commenced the treatment as early as possible, as soon as the diagnosis and determination of the type of infecting organism could be made.

So far as infection due to organisms of Type II is concerned, our results with the serum have not been very promising. We are now studying the treatment of these cases, not with whole serum, but with a concentrated extract of the serum prepared by a method devised in our laboratory by Drs. Gay and Chickering. This method of treatment of Type II infections is still in an experimental stage and I shall not consider it further at the present time.

As regards results of the serum treatment, I should like today to confine my attention chiefly to the results obtained in the treatment of cases due to Type I infection.

I have placed on the wall a chart showing the incidence of cases of the various types and the mortality in each group when the patients have not received specific treatment. The figures are given in round numbers and are prepared from a study of the types of organisms in 400 cases of pneumonia observed in the Hospital of the Rockefeller Institute in New York, and in smaller series of cases in Philadelphia, Boston and Detroit hospitals and in the Presbyterian Hospital in New York (Table I). It is quite probable that in different places and in different years the results may vary somewhat, but the chart undoubtedly gives an average result and will probably be found to be fairly true of any large series of cases. The total mortality rate also is about that at present obtained without specific treatment in all the large general hospitals. It will be observed that the cases due to Type I and II make up over 60 per cent. of the cases and show the average mortality. The cases of Type III show a much higher mortality but are relatively few in number. The cases due to pneumococci of Type IV are greater in number but have a relatively low mortality, so that the fact that serum treatment in this type of case is impossible and will probably remain so, is relatively less important.

TABLE I

In every 100 cases of lobar pneumonia
35 are due to Pneumococci of Type I. Of these 10 die.
30 are due to Pneumococci of Type II. Of these 10 die.
10 are due to Pneumococci of Type III. Of these 6 die.
25 are due to Pneumococci of Type IV. Of these 4 die.
100 are due to Pneumococci of all types. Of these 30 die.

While the cases of Type I compose only about a third of the cases of pneumonia, when the very great frequency of pneumonia is considered, the possibility of influencing cases of this type becomes of very great importance.

In 1914 the number of deaths from lobar pneumonia alone (not including bronchopneumonia) in New York City was 5,145; in 1915, 6,086, and in 1916 will probably be greater still for in the month of January over 1,100 deaths from lobar pneumonia occurred. Of the deaths in 1914 probably 1,800 were due to pneumococcus Type I. This is more than all the deaths from typhoid fever, measles, scarlet-fever and cerebrospinal meningitis combined, and almost as many as all the deaths from poliomyelitis occurring in the present epidemic.

The number of cases of Type I infection so far treated with serum is not large, but the results have been very encouraging. Seventy-two cases have now been treated by this method. Before beginning serum about one third of the patients died. Of the 72 since serum treatment was commenced, 6 have died, a mortality of only a little over 8 per cent. Moreover, of these 6 fatal cases, one patient died late in convalescence from a pulmonary embolism, one died on the fifty-fourth day of the disease from a complicating general streptococcus infection, and two received serum treatment only when they were *in extremis*.

I realize fully the necessity for conservatism in drawing conclusions as to the efficacy of any form of treatment in lobar pneumonia. However, there have been no apparent differences in the kind or severity of the cases treated before and since institution of serum treatment. In practically all cases after administration of the serum is commenced there is very quickly an apparent change in the patient's condition. Most important is the fact that when blood cultures before giving the serum are positive, after one dose of the serum they become negative. Furthermore, after administration of the serum no further extension of the pulmonary process has occurred. The local lesion, however, does not immediately resolve and usually there is no immediate onset of a crisis. Apparently what the serum can do is to prevent the growth or distribution of the organisms through the blood and prevent new and further involvement of lung tissue. It is probable that serum has little effect on the tissues actually consolidated, indeed experiments have shown that the circulation through the center of a consolidated area is so impaired that but little of the serum reaches this region. It seems evident, however, that the intoxication and death in this disease are definitely related to the general infection and to the actively extending process. The fact, moreover, that the experimentally less active Type II serum has apparently no clinical value, makes it certain that either we are being deceived by an extraordinary coincidence or that as we now believe, immune serum is very effective in this type of infection, as effective, if not more so, than any of the other curative sera now employed in other diseases.

The amount of serum required has differed in the different cases, depending on the severity. Our plan is to give 80 c.c. and repeat this dose every twelve hours until the temperature and pulse rate fall. Some cases have received 500 c.c. or even more; in other cases one to two doses have been sufficient. To guard against the administration of serum to patients who are sensitive to such injections, it is our custom to give to all pneumonia patients on admission to the hospital 0.5 c.c. of horse serum subcutaneously in order to desensitize them. By the time the type of organism is determined, in six to eight hours, we have considered it safe to go ahead with the treatment. So far in over 100 cases receiving serum of the various types there have been no alarming or unfavorable results.

A large number of the patients receiving the large doses of serum suffer from serum sickness after a week or ten days. The symptoms, while sometimes distressing, are never serious, and if the serum is efficacious, this disturbance is of course negligible.

I can only speak very briefly of the second possible form of specific treatment, namely, the use of chemotherapeutic substances. Several years ago, influenced undoubtedly by the clinical reports of the efficacy of qumin in the treatment of pneumonia, Morgenroth undertook the study of the action on pneumococci of quinin and also of a number of derivatives of this drug, and he also studied the effect of these drugs on experimental infection in animals produced by the inoculation of pneumococci. He found that quinin indeed has a specific bactericidal action on pneumococci, both *in vivo* and *in vitro,* but that this action is very slight. In studying various derivatives of quinin, however, he found one (called ethylhydrocuprein) which possessed this specific action to a very high degree. Indeed, it was found to be 150 or more times stronger than quinin and is able not only to kill pneumococci in the test tube, even in dilutions as high as 1 to 5,000,000, but with proper dosage may even cure infection in so susceptible an animal as the mouse. This drug may be employed as the base, as the hydrochlorid, or lately as the salicylate. It has been manufactured under the trade name "optochin." If the action of quinin in pneumonia is of the same nature as that of optochin, different only in degree, much credit should be given to the acumen of those physicians who introduced the employment of quinin in the treatment of pneumonia, since the specific action of the latter, judging from the experimental studies, must be very slight.

Dr. Moore, working in the Rockefeller Institute, has shown that the action of optochin is not confined to any one type of pneumococcus, but is equally efficacious against all.

Wright showed that the blood serum of patients who had received optochin by mouth acquires the property of killing pneumococci in the test tube, and Moore has shown that the blood serum of normal or infected rabbits acquires this property after optochin has been administered. Making use of this fact, and employing proper technic, it is indeed possible to determine roughly the concentration of the drug in the blood of the rabbits to which it has been administered, and in a series of patients in the Hospital of the Rockefeller Institute, Moore and Chesney have used this method in an endeavor to determine the best dosage and method of administration in order to obtain the most favorable results.

Since the introduction of the drug, numerous reports of its use have appeared in the literature. Moore and Chesney have been able to collect the reports of its use in almost 800 cases. The conclusions in regard to its clinical efficacy, however, have been conflicting, some have been favorable, other writers have failed to see any good effects from its use. The methods of employment have varied, however, and no standard dosage has been employed. The study conducted in the Rockefeller Hospital has been on a limited number of patients, and has proceeded from the assumption that the good effects, if there are any, are due to the bactericidal property which the drug possesses. In brief, the study has consisted in very frequent determinations of the bactericidal power of the patient's blood after the administration of the drug. In order to determine the best method of administration, various methods were employed and varying dosages. Very early following the administration of the drug to man by Morgenroth and others it was found that it might give rise to untoward symptoms, especially affecting the eye and ear. The amount of drug that can be given is therefore limited, and this maximum nontoxic dose is not much greater than the probable curative dose as determined by animal experimentation. Therefore the proper dosage of the drug is of extreme importance; if too little be given it will have no effect, if too much it is toxic.

The studies of Morgenroth and of Moore and Chesney have also shown that if the pneumococci are exposed *in vitro* and also *in vivo* to concentrations of the drug not sufficient to kill them they may very quickly become resistant to the drug (or "fast," as it is called), and such organisms require a very much larger concentration of the drug to kill them than do the organisms not having been so exposed. Actual examples of this phenomenon have been seen among the patients treated in our hospital. Without going into the actual procedure employed by Moore and Chesney or the steps taken which have led up to their results, I may say that they have found that for the blood of the patient to acquire and maintain a constant bactericidal power it is advisable that the patient should receive first a relatively large dose of the drug (0.5 gm. for a moderate-sized adult), and this followed by small doses given every two hours or oftener. The weight of the patient is important, and the dose should be regulated so that he receive at least 0.024 gm. of the drug per kilogram body weight every twenty-four hours. On the other hand, it is questionable whether it is safe to give much more than 0.028 gm. per kilogram per twenty-four hours. If the daily dose be divided into only two or three doses, the bactericidal power of the serum is fluctuating and the infecting bacteria may acquire fastness. Moreover, it seems probable that the drug is less toxic when administered in the divided doses. At present it is impossible to say whether all toxic effects will be absent when administered as described. None of our cases when treated in this way have shown any ill effects, though one patient, receiving only the amount recommended per twenty-four hours, but in larger individual doses, did show a severe toxic retinitis, leading to complete blindness for six days. Function was gradually restored, however, and now after several months the vision is perfect. Among the cases reported by others, 4.44 per cent. have shown varying degrees of amblyopia, though in only one case, so far as I am aware, has the impairment of vision been permanent. In this instance reported by Oliver, 2.4 grams per day were given over several days, and the symptoms were still present seventeen months afterward.

By the method described it has been possible to cause the blood of pneumonia patients to acquire a high bactericidal power and to retain it as long as the administration of the drug is continued. It is quickly lost, however, after the drug is stopped, in some cases within a few hours.

As to the effect on the clinical course and mortality rate, our experience at present is hardly large enough to enable us to express a definite opinion. In all, only 25 of our cases may be said to have been treated according to the method now considered proper. These cases were mostly infections due to Type II and Type III pneumococci, since all our Type I cases are treated with serum. Since the mortality is high in these groups, the fact that four out of twenty-five patients died, making the mortality 16 per cent., is not discouraging. On the other hand, it cannot be said that the results were very striking or brilliant. They are sufficient, however, to warrant a much further clinical study than has yet been given, and now, since we have definite criteria as to dosage, it is our intention to push the clinical study much further. It is hoped that a proper combination of serum and optochin may give better clinical results than either alone, just as such a combination has done in experimental study.

In this study of the specific treatment of pneumonia results of considerable interest have been obtained. We are apparently much nearer the goal than we were ten or even five years ago. We now know that for treatment based on immunity reaction the type of infecting organism must be known in every case, and we now have methods for determining this. We have a serum that is apparently very efficacious against one of the types of infection. Furthermore, we are in possession of a drug that has a specific action on pneumococcus and we now have knowledge of the proper methods of administering and controlling the dosage.

We should apply with diligence the knowledge we already possess for the relief of our patients suffering from this dread malady, and we propose to continue to seek for further light in order that a specific cure for all cases may be obtained.

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TREATMENT OF CROUPOUS PNEUMONIA BY OTHER THAN SPECIFIC METHODS*

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Within these last three years, Dr. Cole of Rockefeller Institute has put the specific treatment of pneumonia upon what appears to be a firm basis. As yet, unfortunately, the methods proposed are too cumbersome to make the method practicable for the use of any one who has not access to a well-equipped hospital, and to a laboratory in which the proper bacteriological examinations can be made. The Board of Health of Philadelphia is now prepared to diagnose the type of pneumococci and will supply proper serum if the sputum is sent to the laboratory.

It is to be hoped that before a great time has passed a serum made under the Rockefeller rules will be put upon the market, and will be at the free use of practicing physicians, so that at least one form of the disease may have an actual specific cure for it.

TREATMENT BY OTHER THAN SPECIFIC METHODS

Six essentials of treatment stand out which are applicable to practically every case: Early recognition of the case; absolute rest; abundance of fresh air; proper amount of good food; constant watchfulness; administration of proper drugs at proper times. Besides these essentials there are many details.

Early Recognition of Pneumonia.—It is sometimes impossible and always difficult to make a diagnosis of pneumonia during the first twenty-four hours of the attack, but whenever the symptoms and physical signs in a given case are suspicious of pneumonia, the case should be put upon whatever routine treatment is decided upon. Failure to appreciate the probability of an attack being one of true pneumonia may be followed by orders which will allow the patient to be up and about and thus to become exhausted and cause the attack to be much more severe. The essentials as outlined are rest, fresh air, food and watchfulness.

Rest.—This must be absolute. Mental rest as well as physical. All unnecessary movement must be vetoed. The patient should not rise for urination or defecation. To this end a bed pan must be used. Visitors to patients should be distinctly limited. It is better if the patient does not become restless under the restriction to have no visitors at all. If the presence of the wife or husband or any other individual on the other hand soothes the patient, it will be best for that individual to be admitted to the sick room. But care must be taken that the sick room is not made a visiting place for all friends and relatives. In hospital wards where visiting is not controlled as carefully as in private homes, I think it is quite certain that the patients with pneumonia are not quite so well after visits to the wards have been made by friends. The rest should continue several days after convalescence has begun. One must remember that the majority of patients in uncomplicated croupous pneumonia cases get well by a crisis. The remainder by a lysis lasting three or four days.

For a week or ten days the patient has been extremely ill, and all his forces are weakened. Therefore, extreme care must be taken to avoid any unnecessary strain for several days.

After the temperature has remained normal for about one week, provided the patient seems well otherwise, he may be allowed to sit up.

Fresh Air.—This means pure, unheated, unbreathed air, admitted into the room through wide open windows. A room with two windows opposite each other is best so that a cross draft may be formed, thus keeping the air in the room constantly changed. The patient need not be placed in the draft, though except for discomfort, it is a matter of indifference whether a draft blows over the patient, provided he be well protected with clothing so that the body will not be chilled. If it is practicable, it is still better for the patient to be on an open porch protected so that the wind and storm will not drive over the patient. To the writer's mind the usual direction to keep the temperature of the room between 60 and 70 F. is a mistake. Temperature of the air in the room should be that of the outside air. In cold weather the patient should have blankets both over and under him, be clothed in a cap and warm loose underclothing, opened at the back so that they may be easily removed. Thick mittens on the hands are comforting if the patient desires to have his hands outside the bed covers. The nurse should be warmly clad with a soft thick sweater, her feet should be protected with proper shoes, and her legs and ankles with warm underclothing. If the patient's bed clothing has to be changed, or if the body has to be exposed, then of course the windows in the room must be closed, and if practicable, heat turned on in the room. It is proper to have one of two arrangements, either the patient should be treated on a porch connecting with a room into which the bed can be rolled when changes are necessary, or two adjoining rooms should be used, the one in which the patient remains with the windows wide open as directed, the other to be kept warm for changing the patient's clothing. The time which the patient will spend in the room which is protected will depend largely upon the patient himself. Time and again a patient who has been out on the porch or in an open room with the temperature far below freezing, when brought into the warmer room which has been closed for the purpose of changing will make the request to be put into the open room, or on the porch as soon as possible.

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If inquiry is made of the patients they will almost without exception declare themselves more comfortable in the open porch or room. While it has seemed that patients do better in open cold rooms than when the weather is warm, it is not so much the temperature as it is the fresh air which is beneficial.

If a patient is put into a cold room, or on a cold porch and put there without free circulation of air, he will suffer about as much as though he were in a closed warm room. Open the windows and at once the patient will be more comfortable, whether the air be warm or cold. This rule of keeping the air fresh and in full circulation holds whether it is clear and dry, or whether it is rainy. Protect the room and bed from storm by means of screens, but allow free circulation of the air.

These opinions may seem too radical, especially those expressed in regard to the cold and to drafts. It is based upon the observation of many cases in hospital and private practice. There can be no question as to the good results coming from the fresh air. Protect the patient, and neither cold, drafts or dampness will harm him.

Food.—The food necessary to a pneumonia patient should be nourishing, and of not too great quantity. It should be of a character which will not undergo fermentation in the intestines any more than is possible. The bowels should be regularly moved so as to prevent collection of fecal material and consequent intestinal distention.

Food should be stopped or reduced to a minimum when abdominal distention becomes serious.

Constant Watchfulness.—A good trained nurse constantly in attendance is just as necessary in pneumonia as it is in typhoid fever. A sudden delirium, or rapidly occurring cardiac failure may not be observed if no one is in attendance who knows how to interpret symptoms.

The physician should either see the patient twice a day or should be in a position to hear from a well-trained nurse over the telephone during the day.

TREATMENT OF SPECIAL SYMPTOMS

Fever.—The temperature in croupous pneumonia ranges between 103 and 105. For eight or nine days this degree of temperature is not particularly harmful. Baths and sponges are not necessary, and it would seem that the high temperature for that length of time is not more harmful than the disturbance which their administration involves. Cold may be applied to the head or to the afflicted side of the chest with the result of controlling the temperature to a certain extent. Coal tar antipyretics *should never be used.*

Delirium.—The delirium of pneumonia can be relieved by methods to combat the toxemia, to wit, abundance of fresh air and an abundance of liquid. Bromid of potassium in doses of 20 grains every two or three hours is of great value. When the delirium occurs in a patient addicted to the use of alcohol, I am quite sure the use of alcohol in moderately large doses will quiet the patient as will no other drug.

When the patient is violently delirious, thrashing about the bed without sleep, wearing himself out, the use of morphin hypodermatically, either alone or combined with hyoscin, is of the greatest amount of value. The patient should not be restrained by means of a straight jacket or straps except under dire necessity.

The writer has seen patients so exhausted when having to fight against the straps, that exhaustion leading to death has seemed to be the result of the uncontrolled restlessness. Better by great odds the quieting effect of moderate doses of opium than the forcible restraint of the straight jacket.

Circulatory Disturbances.—The circulation is affected apparently in pneumonia in several ways. First by the septicemic conditions in which the patient is poisoned by the toxin circulating in the blood. In this condition the heart is rapid and feeble, the first sound is weak, and the blood pressure is frequently low. In regard to the height of the blood pressure and the prognosis of the case, a low pressure is significant of a severe toxic state, though occasionally, just at the height of the sepsis and when death is imminent, there is rising blood pressure. The circulation is also affected when there is much lung involvement, when the pulmonary circulation is embarrassed, when there is much cyanosis. In these conditions there is frequently high blood pressure. In the cases with sudden circulatory failure, with much cyanosis, leaking skin and running feeble pulse, there is apparently failure of the vasomotor system, and the patient is in a state of shock.

Each of the conditions of the circulation needs a different treatment.

The first with high and often irregular fever, possibly with a low leukocytic count, and low muttering delirium, fresh air if it has not already been used, cold sponges, normal salt solution whether by hypodermoclysis or intravenous injection or proctoclysis is valuable. Caffein is used in the form of caffein sodium benzoate hypodermically; strychnin also is valuable. Digitalis should be used, but its value is much more problematical.

In the second condition, dilatation of the right side of the heart with a high blood pressure, cyanosis, with an accentuation of the second pulmonary sound, blood letting is of the greatest amount of value. Here, too, the use of digitalis is very valuable. Other cardiac stimulants also can be called into use here such as caffein and ammonia, digitalis being the most useful.

The third condition with sudden fall of blood pressure, running pulse and leaking skin is the most hopeless of all. Strychnin, caffein, the intravenous injection of adrenalin chlorid may be tried. In the author's experience, however, this is of little value. The pressure will rapidly rise, but is of extremely short duration. Strophanthin, digitalis must be used hypodermically, with the hope of strengthening the heart muscle.

Oxygen may be used and will give some comfort to the patient, but there is no lasting value by its use.

The Toxemia of Pneumonia.—Low muttering delirium, rapid pulse, and low leukocyte count are severe and annoying symptoms which must be treated. Here the patient must certainly be given all the fresh air possible. Windows must be opened whatever the degree of temperature of the outside air. The circulation must be supported by strychnin and caffein. Abundance of water by mouth, by rectum, under the skin, or directly into the veins is most helpful. It is just this phase of pneumonia in which alcohol in some form has been so widely used and is still in common use. The author has used both large doses of alcohol in the form of whisky and brandy, and small doses under these conditions. After observation he is of the opinion that a case of severe pneumonia is best treated without the use of large doses of alcohol.

In a recent series of twenty-five cases at St. Timothy's Hospital, Roxborough, all alcohol was withheld. There was a mortality of 12 per cent. Many of the cases were of a most severe type. I recognize that the number of these cases is small, too small to prove a rule. But I also know that the behavior of these cases was better than when large doses of alcohol were given. Small doses, half an ounce every three hours, four ounces in twenty-four hours, are perhaps of value because that much alcohol can be used as a food. It is apparently burned up without any trouble, and therefore is of value.

Abdominal Distention. — This symptom is probably the result of the toxemia present. It is best combated by the methods used to overcome that symptom. In addition to limited food, hydrochlorid of eserin used hypodermatically is of value. Pituitrin will also act well under such circumstances. Turpentine stupes put upon the abdomen hot, will sometimes give relief. A rectal tube may also be kept constantly in the rectum during the distention, care being taken to protect the bed, because frequently fecal matter will come through the tube, making an annoying condition.

Acute Dilatation of the Stomach.—This condition is more frequently a complication of pneumonia than is supposed. It occurs usually just after the crisis has occurred, or after the patient seems to be on his way to recovery, following lysis. The patient is usually obstinately constipated, is shocked, vomits large amounts of ill-smelling material from the stomach. There is great distention of the abdomen, especially in the epigrastrium. This fullness is due to the stomach itself being dilated with liquid and gas. The cases are frequently mistaken for obstruction of the intestines, but having been once seen and recognized, they are easily thereafter diagnosed.

The treatment is lavage. Even when there is some doubt as to the diagnosis, the passage of a stomach tube is demanded. The tube is easily swallowed, and apparently does not greatly disturb the patient, though he seems and may be critically ill. On the contrary if the diagnosis is correct, the relief is almost instantaneous, the pulse becomes better, the cyanosis and shock less, and in a short time the patient is on the high road to recovery. If the diagnosis is not confirmed by the use of the tube, the patient is not in the least harmed by the lavage. On the contrary he is somewhat relieved. The dilated stomach needs repeated lavage, frequently about every twelve hours, for two or three days. The frequency with which the lavage is repeated and the time over which it must be continued depend upon the condition of the patient. If the symptoms are entirely relieved, the vomiting does not return, the collapse and constipation are overcome, there is no reason for repetition of the washing of the stomach, but the operation must be continued as long as the symptoms continue.

After the lavage, the patient must be placed either on his right side or on his face. This relieves the constriction of the intestine which always occurs in those cases, whatever the sequence of the dilatation of the stomach and constriction under the mesenteric notch. The relief given removes the true obstruction which occurs at this spot. In addition the administration of eserin hydrochlorate or sulphate in $\frac{1}{24}$-grain doses, given hypodermatically is of great benefit. The fluid intake of the patient must be decidedly curtailed.

Pleurisy.—There is perhaps no case of croupous pneumonia which is not complicated with greater or less inflammation of the pleura. This is manifested by the "stitch in the side" pain on deep inspiration in the adult, and by expiratory grunt of the afflicted child. A friction rub can usually be demonstrated, by auscultation.

The treatment is strapping the chest just as would be done in a broken rib, administration of cold in the form of ice bag or an ice coil. The use of either dry or wet cups gives a great deal of relief. If the pain is severe the administration of opium, usually morphin hypodermatically, is absolutely necessary. This simple pleurisy which is a rule in cases of croupous pneumonia, occasionally is accompanied by a serous effusion.

The treatment of this simple serous effusion which occurs during the height of the disease, depends upon the mechanical effect of the effusion. If the heart is not much displaced, if there is little embarrassment of breathing, then the effusion may be safely left to the forces of Nature for absorption. If, on the other hand, the effusion embarrasses the patient in any way, the fluid should be aspirated under the strictest aseptic precautions. If this tapping of the patient is done by the use of local anesthesia and incision of the skin so that the needle will easily enter the chest, there will be scarcely any disturbance of the patient. On the other hand, if the needle be plunged through the skin without first using a local anesthetic and incising the skin, great shock may be produced. The writer has seen death occur as the cause of such a shock.

Purulent Pleurisy, Pyothorax.—When the temperature of a patient with pneumonia begins to rise after the crisis or lysis, or when the temperature does not fall after the eight or ten days, especially if it take on the character of an increased septic fever, the leukocytes increase in number, the physician knows that the patient is the subject of some inflammatory complication. The most common complication is empyema. The fluid may be either free in the pleural cavity or contained between the lobes, or between the lower lobe and the diaphragm.

Frequently repeated careful examinations of the chest are necessary to locate the liquid. If it is free in the pleural cavity the diagnosis is easy, the only necessity being the daily observation of the chest, stripped. There is dullness over the chest, decreased tactile fremitus and loss of voice sounds. The heart is pushed to the right or left, the liver is dislocated, downward if the effusion is on the right side, and the area of tympany is diminished if the fluid is on the left side. A puncture with a sterile needle will establish the diagnosis. The diagnosis, however, is not so clear cut and easy if the liquid is contained between the lobes. In this condition the dulness is localized frequently in the line of the interlobar fissure. There is lack of fremitus, decreased voice and breath sounds over this area, sometimes accompanied by edema of the skin over this area. If there is doubt as to the presence of liquid, a needle should be inserted between the ribs and careful search made with the needle plunged in different directions. Unfortunately for this method of diagnosis, the needle often does not reach the liquid, even though the physical signs are positive. The difficulty is that either the needle is too short, too small, or has not reached the collection. If the patient is near a Roentgen-ray apparatus, a fluoroscopic examination should be made and a good stereoscopic picture should be taken which will be of the greatest amount of value, showing the presence or absence of a collection. Not only does the Roentgen ray show the presence of a collection, but it shows its exact position. The presence of a collection once established, the fluid must be evacuated.

This operation occasionally is the simplest of procedures, and may be done by the physician who is at all accustomed to doing this operation. But it is by all odds the safest plan to send such a patient to a hospital and have the chest carefully exposed under anesthesia. One word of caution. When the patient is a child and the chest is full of liquid under much tension, the sudden withdrawal of the liquid by means of an incision is often followed by a severe shock, sometimes by even fatal collapse. Therefore it is a safe rule first to tap and afterward to remove the rib or insert a tube.

TREATMENT OF THE CRISIS

When the crisis occurs the patient is getting well. There is no danger of collapse on account of the suddenly lowered temperature. On the contrary the pulse drops in frequency, the heart becomes slower and more forcible. The patient expresses himself as feeling well. Therefore the only treatment is to see that because he feels well he does not abuse his condition by attempting to sit up, by much talking, or by other undue exertion. Stimulants are rarely ever needed.

THE USE OF EFFICIENT DRUGS

Digitalis.—This in the writer's experience is the most useful single drug in all cases of pneumonia with an organic heart disease. Digitalis should be given from the beginning of the attack in moderate doses, ten drops of a good tincture three times in the twenty-four hours. This dose can be increased if the heart shows signs of dilatation; 10 drops used by the mouth or hypodermically can be given every three hours, care being taken that the quantity given is not large enough to cause poisoning by this most useful drug. Remember that when one uses digitalis he uses it because the patient surely needs help. Therefore see that the digitalis is obtained from a source which will insure a potent article. Good digitalis may be life saving, while a worthless drug may sacrifice a life that otherwise could be saved.

Strychnin.—Pharmacologists tell us that strychnin neither raises the blood pressure nor stimulates the heart. Be that as it may, doses of $^1/_{30}$ of a grain every three or four hours, used hypodermatically, is of great value. The patient rests better, his pulse is stronger, he is distinctly improved by its use. Therefore, in severe cases where there is toxemia, where the circulation is poor, I believe full doses of strychnin are not only indicated but are useful.

Caffein.—The alkaloid in two or three-grain doses by the mouth, or caffein sodium benzote hypodermatically, is of value when the patient is weak, either from grave toxemia, or from failure of the circulation.

Camphor.—In the form of camphorated oil used hypodermatically, one or three grains of camphor every one or two hours is useful. It is by no means a specific, but sometimes will help to lift the patient over the incline.

Nitroglycerin.—This is a much abused drug. It is *not* a heart stimulant. The pulse becomes fuller after its use, but this is because the peripheral vessels are dilated. It is of apparent use when the heart is laboring and fighting against a high pressure. Then the peripheral vessels are enough dilated by the use of the drug to allow the heart to become more efficient. Cyanosis with a laboring right heart are the indications for its use. It should be used in full doses for a short time.

Oxygen.—This gives relief to the patient with much cyanosis and laboring heart. The respirations are quieted, the heart labors less. It is a good adjunct to fresh air. Fresh air, however, will usually make its use unnecessary.

Calomel.—If there is much abdominal distention this will do good by causing bowel movements and by apparently lessening the tendency to fermentation in the intestinal tract.

Eserin and Pituitary Extract.—These are of value where there is much abdominal distention. They appear to cause the expulsion of gas from the intestinal tract by stimulating the muscular coat.

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DISCUSSION

ON PAPERS OF DRS. MITCHELL, COLE AND FUSSELL

Dr. Lawrence Litchfield, Pittsburgh: I have followed with great interest Dr. Cole's work for a good many years. While I cannot discuss the present paper I wish to say that I consider the work reported to be the finest piece of constructive therapeutics that has yet been offered to the medical profession. One point which struck me as of great interest is that in the many strains of pneumococci carried along during the entire three years or more there has not been the slightest evidence of mutation. We have heard much of the mutation of organisms of late, and Dr. Cole's work on the pneumococci gives us food for thought.

I was much interested in Dr. Mitchell's work and could not help feeling that if the number of cases in children had been sufficiently large the mortality rate might be different, as he indicated. That which struck me as particularly interesting is that the type most frequent in children is the Group IV type. Group IV is a better name than "type" because this group is made up of different types. This group is made up of the only organisms which have been found in the mouths of healthy individuals, who have not been nursing patients suffering with pneumonic infections of Type I, II or III or have not themselves been convalescent from one of those first three types. In other words, the resistance of children to these organisms is easily raised or lowered and they would be most likely to succumb to those types of pneumococci which are found in the mouths of normal individuals.

Regarding Dr. Fussell's interesting remarks, I would especially emphasize the importance of keeping the patient warm in a cold room or on a porch. We should see that they have plenty of woolen blankets under them. Those of you who have slept out of doors know that one needs as many blankets below as above. In going through hospitals and seeing patients treated out of doors or in cold rooms I always take up the under sheet to see what is between the sheet and the mattress and very often I have been surprised to find only the rubber sheeting. I have been in a hospital and have slept on rubber sheeting and can speak very feelingly about it. Even in mild weather to have a patient in a cold room with nothing but a linen sheet and a rubber sheet under him, and perhaps a hair mattress, is about the coldest comfort that can possibly be given a human being. I always have one, two, three or even four woolen blankets under the patient, between the under sheet and the mattress. If the weather is very cold I put the patient between blankets. I would also emphasize in the treatment of pneumonia the use of an abundance of water, which seems to wash out the toxins. If not readily taken by the mouth it should be used intravenously, and with dextrose rather than sodium chlorid.

Dr. Mitchell, closing: It has occurred to me that an explanation of the lower mortality in the pneumonias of infants and children as compared with adults might be that a much higher percentage of infants and children is affected with Type IV organisms. One point that occurred to me during the reading of Dr. Fussell's paper is that in pneumonia in infants and children there is very often a type, especially broncho or catarrhal pneumonia, which is rather harmed by cold air. We should be careful to distinguish between cold air and fresh air.

Dr. Cole, closing: One point which I hope Dr. Fussell will consider further in his discussion is the question of the medicinal treatment of pneumonia. While I believe in the value of the serum treatment, I regard the medicinal treatment of much importance, especially the use of digitalis. Our experience with the use of the electrocardiogram shows us that digitalis to be effective must be given early so that by the time the drug is needed the patients are somewhat under its effect.

Dr. Fussell, closing: Regarding Dr. Mitchell's criticism of the use of cold air in the treatment of children, I may say that I know that recently the value of fresh cold air in this connection has been questioned. I have, however, treated all my cases of pneumonia in children in cold air, keeping the patients well wrapped up in warm clothing and they have done well.

ACIDOSIS *

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During the past year or two, impetus has has been given to the study of acidosis and to the interest in this subject by the addition of new and valuable methods for the direct detection of this condition and for the estimation of its severity.

Before defining acidosis, a few words may be said about the nature of the acid-base equilibrium in the blood. Owing to its peculiar composition, the blood possesses remarkable powers of absorbing acids and alkalies with little change in its own reaction. This capacity is most essential to the organism, for it makes possible the transfer of acids or alkalies from the point of origin or absorption to the eliminating organs without significant change in the reaction of the transporting fluids, a change which, did it occur, in more than a very small degree, would destroy the life of the cells in contact with the fluid.[1] This constancy of reaction in the blood so essential to life is secured largely by the presence of the sodium salts of certain weak acids, chiefly carbonic and phosphoric acids. It is these salts, and especially the carbonates, which are in the main responsible for giving the blood its capacity for taking up acids or alkalies without change in its own reaction. When the blood takes up acids,, the sodium of the carbonates effects a neutralization of the acid and the carbon dioxid set free is removed through the lungs while the carbonates of the blood are decreased. Similarly, the base of the phosphates neutralizes acids introduced, and the acid phosphate left is eliminated through the kidneys. To these substances, the carbonates and phosphates of the blood, because of their behavior with relation to acids and alkalies, Henderson has given the name of "buffer substances."

Acidosis may be defined as an abnormal diminution in the amount of these buffer sub-

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* Read before the Section on Medicine of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 19, 1916.

[1] Palmer, W. W., and Henderson, L. J.: Clinical Studies on Acid-Base Equilibrium and the Nature of Acidosis, Arch. Int. Med., 1913, xii, 153.

stances in the blood. A number of secondary effects are consequent upon this reduction in the buffer substances for the most part tending to compensate for their reduction or to restore the normal condition. The most constant of these is stimulation of the respiratory center with increased ventilation of the lungs. This in mild acidosis can be detected only by the measurement of the carbon dioxid content of the alveolar air which will be found below normal; in severe acidosis, the deepened respiration at an increased rate constitutes the most characteristic feature of the clinical symptom complex. The kidneys, if their activity is not impaired, excrete an increased quantity of acids and the urine can be rendered alkaline only by the administration of a larger dose of soda or other alkali than is required in the normal individual. The ammonia of the urine may be abnormally high due to the formation of this substance instead of urea in the body in order to serve in the body as a base and spare its fixed bases. When the acidosis arises from the production of the ketone acids, beta-oxybutyric, diacetic and acetone, the presence of the two latter may be detected by qualitative tests in the urine or all three may be estimated by quantitative methods. The amount of these substances in the blood may also be determined. In its mildest forms, acidosis can be detected only by use of some special test or one of the laboratory methods about to be mentioned. The term acid intoxication, however, may be used for the severe grades of acidosis with a clinical symptom complex, of which the most characteristic feature is the peculiar hyperpnea without cyanosis. The milder grades of acidosis occur in a variety of pathologic conditions apparently without great detriment to the patient. The severer grade, that we call acid intoxication, is a very serious, usually fatal, condition. With the development of the new methods for the detection of acidosis, interest has centered to a greater extent upon the study of the milder forms which are of rather frequent occurrence in the hope that a closer knowledge of these will lead to earlier recognition of impending acid intoxication and to the use of therapeutic measures at a time when they can still be of some avail.

Acidosis of milder or severer grade has been found to occur in the following conditions among others: in starvation; on a protein-fat diet, even though calorically adequate if without carbohydrate;[2] in diabetes mellitus, nephritis and cardiorenal disease;[3] in surgical anesthesia;[4] in eclampsia; in severe sepsis and in children, in a variety of conditions and much more frequently than in adults; for example, it may occur during almost any infection in childhood,[5] during the severe diarrheas of children,[6] and in the condition known as cyclic vomiting.

While frequently observed in all of these conditions, acidosis rarely reaches the grade described by the term acid intoxication, except in a few of these conditions, especially in diabetes mellitus and in some of the acidoses of childhood. This condition of acid intoxication exhibits a symptom complex of which, as has been said, the most characteristic feature is the peculiar hyperpnea without cyanosis. The respiration is much increased and the normal ratio of inspiration to expiration is preserved. Vomiting and headache are usually prominent symptoms. In most cases, but not always, acetone and diacetic acid are to be found in the urine and there is an aromatic odor to the breath.

The acid bodies responsible for acidosis are not the same in all cases. In starvation, on a protein-fat diet, in diabetes mellitus and in surgical anesthesia, they are chiefly the ketone bodies. The same is probably true of most of the severe acid intoxications of childhood. On the other hand, in nephritis and in the severe diarrheas of children, Marriott and Howland have found evidence that acid phosphates are largely responsible for this condition.

For the recognition of acidosis, we have available a number of methods. In the first place, the condition may be suspected on the basis of the symptom complex of acid intoxication just described with its peculiar respiration, vomiting and headache. To rest the diagnosis on this basis alone, however, will lead to a certain percentage of error, for further investigation by special methods has repeatedly failed to reveal acidosis in a certain number of cases at first so diagnosed on symptoms alone. When, however, acetone and diacetic acid are found in the urine in association with the characteristic symptom complex, the diagnosis of acid intoxication is much more secure. On the other hand, it must be remembered that acetone and diacetic acid appear in the urine in many of the mildest forms of acidosis, cases that are in no sense to be called acid intoxication, and in which the slight acidosis has no bearing on the prognosis. This is especially frequent in children. For example, Holt has found acetonuria in 70 per cent. of the pneumonias of children. There are many mild forms of acidosis and some of moderate grade, on the other hand, which are not severe enough to give the clinical picture of acid intoxication and which arising from other acids than the ketone acids cause no acetone or diacetic acid to appear in the urine. For the recognition of these and for the more accurate diagnosis of all forms of acidosis, it is very desirable to use one of the newer methods now available. I mean the Van Slyke-Stillman-Cullen method[7] for determining carbonate content of the blood or the Levy-Rowntree-Marriott[8] method for determining the hydrogen ion concentration of the serum. About 5 c.c. of blood taken from a vein is employed in either of these methods, although they can be carried out with somewhat less, and the technic requires about the same degree of familiarity with laboratory methods as does the determination of blood urea. One of these methods ought, I think, to be added to the equipment of every good hospital laboratory for routine use in the study of all patients in whom acidosis might be suspected or, indeed, until our knowledge of this subject is greater, upon all patients.

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[2] Higgins, H. L., Peabody, F. W., and Fitz, R.: A Study of Acidosis in Three Normal Subjects with Incidental Observations, Jour. Med. Res., 1916, xxxiv, 263.

[3] Peabody, F. W.: Studies on Acidosis and Dyspnea in Renal and Cardiac Disease, Arch. Int. Med., 1914, xiv, 236.

[4] Austin, J. H., and Jonas, L.: Clinical Studies of Acidosis, Amer. Jour. Med. Sc., 1916, clii.

[5] Morse, J. L.: Acid Autointoxication in Infancy and Childhood, Boston Med. and Surg. Jour., 1916, clxxiv, 568.

[6] Howland, J., and Marriott, W. McK.: Acidosis Occurring with Diarrhea, Amer. Jour. Dis. of Child., 1916, xi, 309.

Next to these in value, is the estimation of the carbon dioxid content of the alveolar air. A very simple method for this has been devised by Marriott[9] and recently published, and Howland and Marriott have adapted it for use with infants and young children. It can be carried out in a few minutes in the office as well as in the hospital ward, but there is undoubtedly opportunity for error from faulty methods of breathing on the part of the patient and moreover the placing of the air tight mask over the patient's mouth, especially in a nervous or dyspneic patient has in my experience caused much more dismay and anxiety on the part of some patients than the removal of a little blood from a vein.

A fourth test is Sellards' [10] determination of the amount of soda that must be given a patient to render the urine alkaline to litmus. Four grams suffice in the normal individual. Two, three or four times this amount or sometimes much more, depending upon the grade of the acidosis, will be required in cases of acidosis. If there be no cystitis to alter the reaction of the urine between the kidney and the test tube, this simple test is of considerable value.

For routine use in cases as they come, these four methods are, I think, the best. For certain types of cases, the quantitative estimation of the ketone bodies in the urine or the blood[11] is of great value especially in diabetes as a guide to dietary regulations. These methods, however, are time consuming, requiring long distillations. Estimation of urinary ammonia is often of value if the existence of cystitis or decomposition of the urine can be absolutely excluded. A failure to find increased urinary ammonia, however, does not exclude acidosis even of the severest grade, because the kidneys rather readily become impaired with respect to the ammonia excreting function.

For the treatment of acidosis, the rational method would be the removal of its cause. Whenever possible this should be the therapeutist's first aim. Thus, in diabetic acidosis, fats are to be removed from the diet, employing either a fasting treatment or in the cases with impending coma, using small amounts of carbohydrate and alcohol (skimmed milk and whisky meets the requirement).

In the severe acid intoxication of childhood with acetonuria, the withdrawal of fats or perhaps of all food except glucose, the washing out of the stomach, and the cleansing of the intestinal tract with castor oil and enemas is of first importance. Glucose may be given in 10 per cent. solution by mouth or by rectum, or Kahlbaum's dextrose may be given in 2.5 per cent. solution in normal salt solution intravenously.

In the mild or moderate acidosis of renal and cardiorenal disease, promotion of diuresis is the rational procedure. Alkalies act in these cases not only by adding base to the blood, but by promoting the excretion of acids through the kidneys. The same improved excretion following the use of alkalies is often observed in the ketonic acidosis of diabetes. Our means of combating the cause of the acidosis are, at best, very limited, however. We must, therefore, endeavor to replace in some measure the depleted base in the blood, and this best by the administration of bicarbonate of soda. This may be given in a 2 to 5 per cent. solution by mouth, in a 3 to 5 per cent. solution by enteroclysis, or in a 4 per cent. solution in normal salt solution intravenously. In sterilizing this solution for intravenous use, the bicarbonate is converted by the heat into carbonate. This dissolves silica from the container at autoclave temperature unless the best Jena glass is employed. After sterilization, the solution must be reconverted into bicarbonate by passing a stream of carbon dioxid gas through the solution until it becomes colorless to phenolphthalein. Injection of the highly alkaline carbonate solution, without this precaution may be exceedingly injurious, possibly fatal. From 100 to 300 c.c. in infants and from 500 to 1,000 c.c. in adults may be slowly injected and this may be repeated every few hours if required.

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[7] Van Slyke, D.D., Stillman, E., and Cullen, G. E.: The Nature and Detection of Diabetic Acidosis, Proc. Soc. Exper. Biol. and Med., 1915, xiii, 165 (see also paper of Austin and Jonas[4]).

[8] Levy, R. L., Rowntree, L. G., Marriott, W. McK.: A Simple Method for Determining Variations in the Hydrogen Ion Concentration of the Blood, Arch. Int. Med., 1915, xvi, 389.

[9] Marriott, W. McK.: The Determination of Alveolar Carbon Dioxid Tension by a Simple Method, Jour. A. M. A., 1916, lxvi, 1594.

[10] Sellards, A. W.: The Determination of Equilibrium in the Human Body Between Acids and Bases with Especial Reference to Acidosis and Nephropathies, Bull. Johns Hopkins Hosp., 1912, xxiii, 289.

[11] Marriott, W. McK.: The Blood in Acidosis from the Quantitative Standpoint, Jour. Biol. Chem., 1914, xviii, 507.

In the use of alkali by any of these methods, the dosage is best regulated by observing the effect on the reaction of the urine. This should be rendered neutral, but not distinctly alkaline. If the urine be diluted with twenty-five parts of distilled water and a drop of alizarin sulphonate added, it will react before treatment distinctly acid; when sufficient soda has been given, the diluted urine will be red to alizarin but should still be colorless to phenolphthalein. If there be no cystitis to alter the urinary reaction, this serves as the best guide to dosage. Normal urine is rendered distinctly alkaline by four grams of soda; a case of diabetic acidosis may take 100 grams of soda in less than twenty-four hours before the urine will become neutral. Administration of alkali may bring about a cessation of the hyperpnea of acid intoxication and diminish the laboratory evidence of acidosis. In the severest cases of acid intoxication, however, death occurs even when the urine has been rendered alkaline. This is probably due to the fact that although the buffer value of the blood has been restored, the altered condition in the tissue cells is less readily reached or the injury done is irreparable. Hence the importance of the early recognition and control of a developing acid intoxication. While in the mildest forms of acidosis, alkaline therapy is quite unnecessary, it is probably never detrimental, if not carried to the point of rendering the urine strongly and persistently alkaline.

DISCUSSION

Dr. Alfred Stengel, Philadelphia: It occurs to me that Dr. Austin's paper will bear a little emphasis on the point which he very properly brought out, that acidosis is a condition occurring in a great variety of diseases. Speaking from the standpoint of the clinician and practitioner, it is very important to call attention to this fact, because as I understand the psychology of us all, when we recognize that a patient is suffering from some definitely ascertained disease, and we are directing our therapeutics against that disease, we are very apt to overlook the fact that there may be subsidiary conditions much more important from the therapeutic standpoint than the original disease. For example, in treating cardiac decompensation, under certain circumstances, the patient may be more seriously threatened by the acidosis encountered than by the cardiac decompensation. Similarly, one may recognize that a patient is suffering from renal disease and yet that patient may be more seriously threatened, if such a thing be possible, by the accompanying acidosis than the renal disease. For example, I saw some days ago with Dr. Anspach a very serious case of convulsions in a young woman two weeks after delivery. Dr. Anspach was naturally very much disturbed at the sudden development of convulsions two weeks after delivery in a woman in reasonably good condition, though it was known that she had renal disease. She was more seriously threatened, as we judged the case, from the acidosis which accompanied her renal condition than by the renal disease or lack of elimination that may have contributed largely to the seriousness of the acidosis itself. Along with other treatment (elimination) we gave her intravenous injections of bicarbonate of soda with evident benefit and she steadily improved.

I should also like to say in passing that there are occasional cases of acid intoxication, using this term as Dr. Austin has used it, in which the patients recover under treatment. I, myself, have seen only two cases and only one definitely certain case of severe acid intoxication—diabetic coma—in which the patient recovered. One of these cases was reported a number of years ago by Dr. Edsall, then working with me and in my service. The other case occurred in my private practice and was much more definite in that the first case passed from under observation. The case was one of severe coma and the patient recovered. We occasionally read in the literature of patients surviving for a number of months or weeks after coma, but the general attitude of the profession is that patients with diabetic coma cannot recover. I believe this to be a wrong premise and that severe acid intoxication should be fought to the bitter end, though we may be defeated ninety-nine times out of a hundred.

ACIDOSIS; WITH CASE REPORTS *

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Intoxication with diacetic acid and acetone, as demonstrated by the presence of these substances in the urine, has been considered an important factor in certain clinical conditions such as dyspnea from cardiorenal disease, the cyclic vomiting of children, the pink asphyxia occurring after anesthesia, and in the terminal stages of exophthalmic goiter, tuberculosis, etc., the postanesthetic vomiting, and the symptom com-

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* From the Department of Internal Medicine of the South Side Hospital, Pittsburgh.

* Read before the College of Physicians of Pittsburgh, Nov. 23, 1916.

plex known as acidosis which occurs frequently in children.

In considering this subject properly it will be necessary to consider the latest theories concerning the origin of acetone and diacetic acid.

Acetone and diacetic acid are principally derived from the oxidation of fats through a long process involving the transformation of the fatty acids into acetone and diacetic acid.

Certain amino-acids, such as leucin, tyrosin and phenylalanin, which are ingredients of protein food, can be transformed into actone, diacetic acid and beta-oxybutyric acid by oxidation and rearrangement of their molecules.

Proteins can be transformed into proteins, carbohydrate and fat so that some of the transformed fat from protein can be oxidized into acetone and diacetic acid. In this process of oxidation certain tissue ferments known as oxidases and lipases have something to do with this transformation so that any perversion of their function by infection might be partially responsible for the production of pathologic amounts of acetone and diacetic acid.

Recently observations were made on seven cases of different types. The case histories are as follows:

Case 1.—Family history was negative. Child has had tonsillitis and whooping cough, otherwise the past medical history is negative. Child was taken sick Dec. 15, 1914, following whooping cough, with temperature ranging from 100 to 103 F., and all accompanying symptoms of fever, cough and a peculiar vasomotor phenomenon presenting periodical pallor bordering on a slight cyanosis around the mouth with flushed cheeks. The physician in charge of the case suspected pneumonia in which he was perfectly justified.

Examination revealed a few crepitant râles over the base of both lungs in back with a tympanitic abdomen, otherwise the physical findings were negative. Urinalysis showed a marked amount of acetone and diacetic acid without anything else.

Patient was immediately given ten grains of sodium bicarbonate every two hours and recovered in a few days.

Case 2.—Male child, 8 years old. Family history: neurotic; child has always been poorly nourished and subject to gastro-intestinal disturbances of various kinds. For the past four or five years this child has had periodical spells of vomiting accompanied by a peculiar nervous phenomenon characterized by semiconsciousness and opisthotonus. These spells would occur every two or three months. Shortly before and during these attacks the child presented the vasomotor phenomenon about the lips and cheeks which was described in the previous case.

Examination showed a poorly nourished child with rachitic teeth. The chest presented an area of impaired resonance over the upper left lobe in front with harsh breathing. The abdomen was tympanitic with a slight separation of the recti muscles. presenting a partial hernia. The blood examination was negative with the exception of a secondary anemia. The Wassermann test was negative and the sputum was negative. The urine showed a marked amount of acetone and diacetic acid. Fluoroscopic examination of the stomach showed an upward and downward motion synchronous with respiration. The stomach emptied itself in the normal time and presented no particular pathological condition.

Child was put on ten grains of bicarbonate of soda every three hours. He was given a general diet and was kept in the hospital under observation about six weeks. During this time he gained rapidly in weight and general appearance. He had no nervous attacks while under observation and reports from him since indicate that he is still improved.

Case 3.—Male child, aged 8 years; gave a negative family history. Child has always been subject to periodical attacks of nausea and vomiting, great prostration, and a temperature ranging from 100 to 103 F. These attacks would occur about every six months or one year and were diagnosed cyclic vomiting. About two years ago he had his tonsils and adenoids removed, since then the patient has not had as many attacks. Patient became sick suddenly with nausea, vomiting and temperature. This patient would vomit about every hour, presented the vasomotor phenomenon about the lips and cheeks that was observed in the previous cases. This attack lasted about four or five days with the intermittent temperature and periodical spastic contraction of the adductor muscles of the feet causing them to turn inward.

Urinalysis showed a marked amount of acetone and diacetic acid; otherwise negative. The patient was put on high enemas of bicarbonate of soda solution, 20 grains to the pint of sterile water twice daily, with 10 grains of sodium bicarbonate by mouth. He promptly recovered in the course of a few days.

Case 4.—Male child, aged 2 years, gave a negative family history. About one year previous to his present illness this child had slight rhinitis followed by slight adenitis of the carotid glands in the neck, which subsided without complications.

This child became sick suddenly after having a slight rhinitis for about one week. The onset was abrupt with elevation of temperature reaching 104.5 F. in the axilla. The face, including the external ears, was waxy in appearance which was attributed to a different form of vasomotor phenomenon than that present in the three previous cases. This attack lasted about four days.

Examination of ears, nose, eyes, throat, including diphtheria culture, chest, abdomen, in fact everything was negative and continued so until urinalysis on second day of severe illness revealed marked reactions for acetone and diacetic acid.

This child was given ten grains of sodium bicarbonate by mouth every two hours and in addition he was given two high enemas containing twenty grains of bicarbonate of soda to the pint of sterile water, and in twenty-four hours after this medication was started, his temperature dropped to 100 F. and he was sitting up in bed playing with some toys.

Case 5.—Adult, aged 71 years, gave a negative family history. Patient had chronic diarrhea about twenty-eight years ago, with recurrence about ten years ago; had smallpox when a young man. He has been complaining for about one year with nervousness, insomnia, and obstinate constipation. For the past six days he has been complaining more severely with these symptoms together with headache over left eye. Blood pressure was 152 systolic, and 70 diastolic.

Patient lay in a semi-stupor, with opacity of both crystalline lenses, tongue dry and red, peculiar film of mucus over anterior surface of the pillars of the fauces simulating Bouveret ulcer. Heart sounds were distant with slight systolic murmur over the apex of the heart. Abdomen tympanitic with evidences of distended bladder. Catheterized specimen of urine showed nothing but diacetic acid. Large doses of sodium bicarbonate and magnesium carbonate seemed to relieve him greatly and he made a fair recovery from his acute intoxication.

Case 6.—Female, aged 32, saleslady in clothing store, gave family history negative except mother had asthma. Patient has had mumps, measles, and chickenpox. Some years ago she fell off street car and struck back of left side. Septum operation was performed about one and one-half years ago. She has been complaining for about two years with periodical spells of hoarseness, sneezing, dyspnea, and itchiness of palms of hands and soles of feet. Careful questioning in regard to nitrogenous intake revealed nothing that could account for these spells, also questioning regarding the handling of certain clothes threw no light on the condition, but barometric changes and tobacco smoke produced this condition.

Careful examination of teeth and sinuses with Roentgen ray, together with physical examination, revealed nothing but the signs of bronchial asthma, such as musical râles over both lungs, prolonged expiratory sound and dyspnea. Urinalysis showed nothing but diacetic acid during acute attacks. Sodium bicarbonate and calcium chlorid did not relieve the patient, but since administering one grain of thyroid extract three times a day, she has apparently been relieved.

Case 7.—Male, aged 58 years, gave a negative family history. Past history: measles, mumps and chickenpox; repeated attacks of parenchymatous tonsillitis until about fifteen years ago; fracture of right leg some time ago.

Last Christmas urinalysis was negative. Last May urinalysis showed 4 per cent. sugar which cleared up on low carbohydrate diet last August. Patient had constipation for the past year. Five weeks ago, he started to complain of periodical retching and vomiting with pain in epigastrium.

Examination revealed positive findings as follows: Pyorrhea with removal of several teeth, but others are still affected; slight cyst in thyroid gland; tenderness and pain over region of gallbladder. Blood examination was negative; gastric analysis negative; urine negative except marked persistent reaction for acetone and diacetic acid. Pulse was 60 to 68; temperature 98 F.

In spite of administration of sodium bicarbonate by mouth and by enteroclysis (Murphy) until the patient's urine was markedly alkaline, he still continued to retch and vomit in spite of the administration of all known anti-emetics.

From an analysis of the symptoms in these cases this condition can be classified into the pulmonary, the gastro-intestinal and the meningeal forms.

The pulmonary form comes on suddenly with cough, rise in temperature, and physical signs of bronchitis, but never progresses to consolidation unless complicated with pneumonia. This form of acidosis is also accompanied by the peculiar cyanotic pallor around the lips with flushed cheeks.

The meningeal form also has a sudden onset with rise in temperature, and a great variety of meningeal symptoms presenting signs characteristic of infectious meningitis such as ptosis, cervical rigidity, squint, various spasmodic muscular contractions, convulsions, and coma.

In the majority of instances combinations of these forms exist. In the fourth case nothing presented except high temperature, waxy color of face and external ears, with acetone and diacetic acid in the urine. This case can be considered an atypical one, and would have been very hard to diagnose without urinalysis.

The great variety of symptoms in these cases make them very hard to diagnose. The only characteristic sign that was present in nearly all of them was the cyanotic pallor around the lips with the flushed cheeks or a general waxy appearance of the face and external ears. In several cases a thin film on the anterior pillars of the fauces suggestive of a Bouveret ulcer or mild diphtheritic infection was noticed.

The patients appear very ill and serious cases have been reported which have died as a result of this intoxication. Cases of meningitis in children have been reported cured with sodium bicarbonate, but these cases are probably acidosis of the meningeal form. They are apparently closely associated with various forms of adenopathies such as diseased tonsils, adenoids, enlarged cervical glands due to streptococcic, staphylococcic or tubercular infection.

Improper hygiene and diet has been held responsible for this condition. It has also been known to follow or accompany various acute infections such as measles, whooping cough, etc. Perverted action of the parenteral fat splitting enzymes, due to some infectious toxemia seems to be a logical theoretical cause for acidosis.

The treatment for the acute attack is large doses of sodium bicarbonate either by mouth or by rectum with rest in bed and liquid diet.

After the subsidence of the attack the removal of any focus of infection such as tonsils should be advised together with general hygienic and dietary regulations.

CONCLUSION

In all acute infections in which the diagnosis is not absolutely clear it is advisable to have urinalysis for acetone and diacetic acid; in fact, in routine urinalysis it is advisable to test for these substances, inasmuch as it might throw considerable light on certain obscure conditions. It is also advisable, in suspected cases, to estimate the carbon dioxid tension of the alevolar air.

308 Diamond Bank Building.

RELATIVE INFREQUENCY OF THE DRUG HABIT AMONG THE MIDDLE AND UPPER CLASSES. TREATMENT AND FINAL RESULTS *

FRANCIS X. DERCUM, M.D.
PHILADELPHIA

There has been of late years a marked diminution in the number of users of drugs in the middle and upper classes. This change was noticeable long before the Harrison Act was passed. Years ago it was quite a common experience to see patients in the middle walk of life who were addicted to the use of morphin or to the taking of laudanum. Gradually, however, the number of these cases diminished until at present they are quite infrequent. Now and then, however, a confirmed case is still encountered. The gradual diminution in the use of drugs has been due, I believe, largely to the influence of physicians and to the spread through the community of the knowledge of their baneful effects. To the general educational movement, which has taken place for almost a generation in our public schools in this respect, and in our newspapers, much of the benefit is also to be ascribed.

Further, physicians a generation ago were, I think, more prone to resort to hypodermic injections of morphin for the relief of symptoms than are physicians of the present day. It has long been recognized that the diagnoses of affections attended by attacks of pain are usually made much more obscure by a hypodermic injection of morphin. This point was especially and early emphasized during the rise of abdominal surgery. Physicians at the present day, it may be truthfully claimed, are on the whole exceedingly careful and conscientious in the use of morphin and opiates generally. If a hypodermic injection is absolutely necessary, it is as a rule combined with scopolamin hydrobromate so that a much smaller dose of the morphin itself is required. An eighth of a grain of morphin, for instance, combined with one two-hundredths of a grain of scopolamin will accomplish what it formerly took one quarter of a grain of morphin to do. That the danger of establishing a habit under such a cautious administration of the drug is greatly lessened, there can be no doubt. Finally, physicians habitually avoid the use of morphin in prescriptions and when it is given under the direction of a nurse, the number of doses is usually carefully limited.

A drug habit when established is commonly concealed and it depends on the acumen of the physician whether or not it is detected. The individual usually presents a history of erratic conduct, of failure to meet his daily obligations and of changes in manner and demeanor which attract the attention of family and friends. If the conduct of a patient is such as to suggest inebriety and notwithstanding there is an absence of an alcoholic history, drug taking should be suspected. In this connection, the physician must, of course, be on his guard for the symptoms of the early stage of paresis and of other mental affections. These likewise are expressive of toxicity, and here serious errors may be made; but setting these conditions aside, the detection of drug habits is not as a rule a difficult matter. It is always a good plan to have the patient seated in the physician's consulting room in such a way that the light falls fully on him, so that peculiarities of gesture and manner and special signs, such as those as are offered by the pupils, are at once open to observation. Hurried examinations sometimes lead to gross errors. I have known, for instance, the case of a patient who was a confirmed user of morphin in whom a hurried examination led to the erroneous diagnosis of tabes.

I need not call to your mind the symptoms observed either in those who take morphin on the one hand or those who take cocain on the other. In both instances there is a lack of vigor and impairment of the power to do the necessary work; energy and aptitude are alike diminished. Will-power is lessened and the patient's thoughts and acts reveal indifference to his obligations. There is a loss of the sense of responsibility and the emotions likewise become distinctly blunted. Along with these there is a marked deterioration of character. Patients do not hesitate to lie, to practice deception, especially if by the latter means they can secure a supply of the coveted stimulant. Memory and the intellectual faculties as well become impaired and the patient is markedly

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* Read before the Philadelphia County Medical Society, Nov. 22, 1917. For report of symposium containing this paper see January Journal, page 315.

depressed and irritable, especially if he has for a time been deprived of the drug. Sleep also is much impaired.

If in a case of morphinism we handle the limbs, we note that the patient flinches. There is a marked hyperesthesia of the extremities, sometimes painful in character and there is a marked muscular weakness together with tremor and loss of tone. The reflexes reveal no characteristic change. Sometimes they are increased and at other times they are much diminished.

It is especially the nutrition of the patient that attracts the attention. The superficial fat disappears, the skin is yellow, relaxed and dry. Sometimes in long-standing cases the appearance suggests that of a person who is aging prematurely. Finally, if we examine the skin closely, we may find numerous fine scars of hypodermic injections; sometimes the scars of pustules or local suppurations from infected injections are noted.

It is hardly necessary for me to refer to the gastro-intestinal symptoms, the coated tongue, the diminished appetite, the dislike for meats, the constipation, or to the vascular symptoms, the cardiac asthenia, the palpitation of the heart and the coldness of the extremities, but these points should all be borne in mind in investigating a suspected case.

In a case of cocainism we note pallor of the face, small, rapid pulse, dilatation of the pupils, sweating, coldness of the hands and feet and occasional nausea. Especially, however, it is noted that the patient is restless and agitated, he cannot keep still, he is always changing his position, getting up, sitting down, going from one chair to another, leaving the room and coming back, and he often talks incessantly. That depression accompanies this restlessness it need hardly be stated. The depression is lessened, of course, for the time being, as each additional dose is taken. When cocainism becomes pronounced so that it eventuates in cocainic confusional insanity (a condition comparable to alcoholic confusional insanity) hallucinations may be noted. These in the case of cocainic insanity are especially referred to the surface of the skin, especially of the extremities, the patient complaining of itching, crawling, sticking or biting sensations.

When I review my records of the passing years, I find that cases of morphinism and cocainism have, as I have already stated, become less frequent, at least in my own experience, among the middle and upper classes. In former years I occasionally noted the habit among physicians. In such instances the patient was usually a physician who lived under great stress and strain and who in order to relieve some symptoms from which he was himself suffering, had taken a dose of morphin and had perhaps inadvisedly repeated it too often and thus almost unconsciously acquired the habit. Occasionally, too, I have noted that a patient under these circumstances would make use of cocain in order to counteract the sleep-producing effects of morphin and perhaps in addition make use of alcohol in order to overcome the general depressive effects, and in this way acquire the so-called triple habit. Fortunately, however, the use of drugs of all kinds has greatly diminished so that instances of this habit are now quite rare; and this change in the upper and middle classes had taken place, as already stated, before the introduction of the Harrison Act. The Harrison Act, as far as my own observation goes, has been especially effective in reaching the poorer, the hospital and the dependent classes generally and more particularly the degenerate and criminal classes of the tenderloin. That it also protects the drug inebriates of the middle and upper classes there can be no doubt.

The treatment of the drug habits in the middle and upper classes does not, of course, differ from that applied to the poorer classes. In either case, as far as possible, a physiological method of living should be instituted. The drug should, of course, be withdrawn and should be withdrawn as rapidly as possible; rapidly when the general condition of the patient permits of it, more gradually if the impairment of the general health be very grave. In every instance also elimination should be stimulated as much as possible and in the case of a rapid withdrawal of morphin, brisk saline cathartics should be employed. The latter and rather radical treatment is, of course, not applicable to cases in which there is marked physical enfeeblement.

The permanency of a cure depends largely on the subsequent life of the individual. That life should be a simple physiological life with abundant hours of rest, abundant food, a proportionate amount of exercise in the open air and, above all things, a wholesome occupation which takes up the time of the patient for a reasonable number of hours every day. Social diversion, moderate in degree, is, of course, also of value. When all is said and done, however, we should bear in mind that a person who acquires alcoholism or who becomes a confirmed user of drugs is at the outset usually not a normal individual. Very frequently he is hereditarily neuropathic. Quite often we note in the family histories of such patients a history of alcoholism, of repeated nervous breakdowns or it may be of actual psychoses. The inheritance of ready exhaustion, of depression, of a neuropathic makeup generally, plays a rôle in many cases. It is this feebleness of resistance which under the strains of living leads many persons to resort to stimulants. The organization which leads to morphinism and cocainism does not differ essentially from that which leads to alcoholism. It is more than ever imperative that persons once so afflicted should lead wholesome and simple lives.

In many cases both of the poorer and well-to-do classes, withdrawal cannot be successfully accomplished unless the patient be under strict supervision. Such supervision can be enforced only in the wards or private rooms of a hospital or of a sanitarium. Quite commonly too isolation is imperative, i. e., isolation from visitors and friends who may surreptitiously supply the patient with the drug. If the patient's means permit it, the wisest and best plan is to institute a formal rest treatment. Under such circumstances the patient is under far better control by the physician. The drug can be withdrawn accurately in such manner as the physician deems wisest and at the same time supporting and tonic measures can be instituted. There can be no doubt that the upbuilding measures of rest treatment constitute a powerful factor in diminishing the suffering of such patients and also of placing them in such a condition of both physical and mental health as to lessen greatly the danger of relapses in the future. If the rest treatment be sufficiently prolonged and then followed by systematic exercise, occupation and healthful diversion as just outlined, the patient is placed in the most favorable condition for permanency of cure. It may be safely claimed that under such circumstances recurrences are on the whole infrequent.

An important point in regard to the treatment of the morphin habit should be emphasized and that is that during the withdrawal of the drug certain symptoms make their appearance. These vary somewhat with the gradual or abrupt character of the withdrawal, but they are never absent if the withdrawal is actually taking place. Just as soon as the latter is effective, the patient becomes restless. Restlessness may become very marked and is always accompanied by a more or less marked insomnia. The patient is apt also to yawn or to sneeze a great deal. Often he complains of having caught cold, or perhaps he has an attack of difficult respiration simulating asthma. At times all of the symptoms of a frank attack of cold in the head or a troublesome cough make their appearance. In addition, the patient complains of a sense of oppression, is distressed and frightened, becomes fault-finding and resistant and declares himself dissatisfied with the treatment.

The restlessness may become extreme; involuntary movements of the legs and arms may make their appearance, the limbs being thrown about the bed; at other times distinct involuntary jerkings and tremor make their appearance. Sometimes there is palpitation of the heart or a sense of fluttering in the precordia. Vesical tenesmus also may be noted.

If the patient has been in the habit of taking large amounts of morphin daily and the withdrawal has been abrupt and complete, a sense of great weakness and fatigue supervenes; the patient is soon unable to stand or to walk. He trembles from exhaustion and his body becomes bathed in sweat. There is a profound sense of sinking in the epigastrium and very frequently gastric and abdominal pains make their appearance. Soon nausea, vomiting, and profuse diarrhea set in, the heart's action becomes weak, the pulse rapid, the extremities cold. In severe cases, or if the symptoms be not relieved by a temporary recourse to the drug, the patient may become greatly agitated and disturbed, moans or cries out or may become confused or delirious.

It is exceedingly probable that the long-continued ingestion of morphin gradually results in the production of an antitoxin so that little by little the patient becomes more and more tolerant of the drug. This tolerance or relative immunity can be explained on no other ground. Hirschlaff indeed has demonstrated the production of such an antitoxic principle experimentally in animals. It would seem that the symptoms arising during the withdrawal of the drug are largely due to the unantagonized action of the accumulated antitoxin. The sweating, the vomiting, the diarrhea can only be looked on as the efforts on the part of nature at elimination. For us the symptoms of withdrawal have an all important diagnostic significance. It stands to reason that if in a given case, none of these symptoms be present and if the patient continue comfortable, in good spirits, sleeps well and is contented, he is obtaining the drug surreptitiously.

1719 Walnut Street.

SELECTIONS

MEDICAL PHILADELPHIA

Why have the Rockefeller Foundation and the General Education Board given $2,000,000 to Chicago's medical "merger," and how have the trustees of the merger, as announced by Dr. Billings in his letter to the *Public Ledger* this morning, succeeded within two months in raising $3,300,000 more to complete the fund of $14,300,000? These questions present to Philadelphia, the traditional medical center of the nation, a peculiar problem.

Chicago's merger was brought about, Dr. Billings says, because it is being more and more realized that the doctors who will care for the rising generation must be taught by professors who give all their time to teaching and to making fresh discoveries. The doctors who treat us for our ailments learned of professors who spent most of their time in private practice—and first-rate professors many of them were and are. But they are the first to acknowledge that the progress of medicine and surgery has outstripped them. If they are to keep abreast of their sciences, not to speak of adding to them, they must leave private practice.

Dr. Billings states the need succinctly. If the sciences underlying the bedside care of patients require the entire time of professors who teach them, should the teaching of doctors in the bed-side branches themselves, which are yet more complex, be longer in the hands of professors who must earn their bread by active practice outside their teaching? Nowadays a man's work takes the best part of his time and energy. Shall a fagged-out physician or surgeon use the small ends of his time and strength to teach? If the name and prestige of a professorship benefit him, will it benefit his pupils?

Johns Hopkins, Yale, Washington University in St. Louis, and Chicago have adopted the principle of putting their medical professors on full time with larger salaries. President Thwing and Professor Hoover of Western Reserve University, in Cleveland, have written to the *Public Ledger* announcing the new policy adopted by its medical faculty of founding permanent salaried, full-time positions as "rapidly and extensively as circumstances permit." We have no doubt that such agencies of philanthropy as the General Education Board and the Carnegie Foundation will approve this policy, following approval with substantial support. Dr. Billings expresses the hope that Jefferson Medical College and the University of Pennsylvania will declare together in its favor.

Once an adherent of the part-time principle, Dr. Billings indicates in his letter his conversion to full time. Whether the reasons which he urges are convincing may be measured by their effect on the open-minded men of the University, the Polyclinic Hospital and College and the Jefferson Medical College. We believe the principle set forth by Dr. Billings is rapidly gaining in the minds of the trustees and managers of Philadelphia institutions. All these institutions have recognized the distinct advantage, if it can be brought about with due regard to their respective needs, in a merging of their interests. The Medico-Chirurgical College has been recently consolidated with the University. The larger plan can be made successful by a union of forces on the full-time principle.—Editorial, *Public Ledger*, Jan. 28, 1917.

CHICAGO'S MEDICAL "MERGER" AND PHILADELPHIA'S CASE

To the Editor of Public Ledger:

Sir:—I have been requested to give an opinion of the principles which have governed the General Education Board in its endowment of medical education at Johns Hopkins, Yale, Washington (St. Louis) and Chicago Universities.

It is now well known that the General Education Board has adopted the principle of what is known as the "full-time plan of teaching" in the important branches of medicine, surgery and obstetrics. On this basis the hospital and teaching staff devotes its entire time to the hospital service, to teaching and to medical research. Through its chairman, Mr. F. T. Gates, the General Education Board has expressed the opinion that since it is universally conceded that the teaching of the underlying medical sciences, viz., anatomy, physiology, pathology and pharmacology, must be placed in the hands of men who devote their entire time to teaching and to research in these subjects, it rationally follows that the clinical branches, which are more complicated and extensive than the above-mentioned underlying sciences, should be cultivated and taught by men freed from the distraction involved in earning a living through private practice.

The principle of full-time teaching did not originate with the General Education Board. It was conceived by the late William R. Harper, first president of the new University of Chicago. In 1901-1903 plans were made for a medical school at the University of Chicago, including Rush Medical College and the Presbyterian Hospital, with a university hospital on the campus. The plan then contemplated full-time clinical teachers in the main subjects of medicine, surgery and obstetrics. The effort of that day failed because it could not be properly financed.

The majority of the clinical teachers of America probably do not accept the full-time-plan principle. The majority of them have had experience as part-time men with small salaries, often no salary, and have been obliged to earn a living by private practice. These men have given satisfaction to the students, and especially in the days gone by, when scientific knowledge was less than it is today. Since medical research has become so widely disseminated through the generous giving of many benefactors in America and since the knowledge of medicine has required a broader and more expensively conducted curriculum many of the proprietary schools have gone out of existence because of lack of financial support.

The number of university medical schools has increased and now there is justified criticism of the clinical departments, which, lacking financial support, have not been conducted on a full university standard as compared with the underlying fundamental medical sciences. It has naturally followed that those who are interested in the advancement of medical education, including not only individuals but corporations like the General Education Board should, after a survey of the situation, declare in favor of the full-time plan of clinical teaching. Naturally all of the teachers in the underlying fundamental sciences approve of it. After thirty-seven years of experience as part-time medical teacher I most heartily indorse it, because I believe that the present standards of knowledge of medicine will require the undivided time and attention of the clinical medical teacher if he fulfill his obligations to the university as a teacher and as an investigator of the problems of the prevention and cure of disease.

The next factor which, apparently, has induced the General Education Board to endow medical teaching in any given place may be included under the following: The reputation of the institution as shown by the character of its alumni, the moral and financial support which it receives from individuals of the community in which it is located, the attitude of its officers and teachers in reference to high standards of medical teaching and medical investigation, and, above everything else, the willingness of the medical teachers to make personal sacrifices of income in private practice to the devotion of a full-time plan or, at any rate, of sufficient time to medical teaching and investigation to justify the title of medical teachers.

At Johns Hopkins all of the conditions named were found more or less true with a high-grade medical school and a splendid hospital. The full-time plan received the indorsement of Prof. William H. Welch, whose lifelong devotion to medicine as a teacher and investigator made his decision of greater value, probably, than that of any other man in America.

It was not difficult at Johns Hopkins to secure the consent of individuals to accept the full-time plan in medicine, surgery and in diseases of children, and the adoption of the plan at that institution has resulted to the perfect satisfaction of Professor Welch, of the members of the General Education Board, and, apparently, of those teachers who have accepted full-time places. With a larger capitalization I have understood that the full-time plan is to be extended to other departments of Johns Hopkins.

At Washington University, St. Louis, the attitude of the University Board was directed by the splendid sentiments and activity of Mr. Robert S. Brookings, who gave generously to the funds of the university and to the medical school and induced others to do likewise. With this attitude on the part of the trustees supported by some members of the local profession the conditions at St. Louis justified the General Education Board in the endowment of a chair of medicine which is now administered under the full-time plan.

In Chicago the high ideals of medical education established by William R. Harper and maintained by his successor, President Harry Pratt Judson, have found support from not only the full-time teachers of the underlying medical sciences, but also in the clinical departments. In Chicago the difficulties were great. Rush Medical College and the Presbyterian Hospital, affiliated with the university as its clinical department, were separated from the campus of the university by a distance of about ten miles. This separation of teachers of the fundamentals and the teachers of the clinical departments was harmful in its effects on the teachers and also detrimental to the best interests of the students. In spite of those difficulties, the high ideals, the desire to upbuild the clinical department on a university standard, led to the development of research institutions in the vicinity of the clinical school. For more than ten years the Memorial Institute for Infectious Diseases, under the directorship of Prof. Ludwig Hektoen, has carried on its interesting work more or less identified with the undergraduate clinical teaching in Rush Medical College. For five years the Otho S. A. Sprague Memorial Institute, with Prof. Gideon H. Wells as its director, has applied a part of its budget of from $50,000 to $55,000 per year in clinical research at the Presbyterian Hospital and Rush Medical College. At the same time there necessarily has been an evolution in the conduct of the college and of the Presbyterian Hospital. The latter has grown to be a hospital of 440 beds, of which 325 are in wards. It has become a teaching institution; its senior students act as clinical clerks within those wards. It furnishes clinical material for all sorts of investigatory work.

The improvement in the conditions of clinical education at Rush Medical College and the Presbyterian Hospital, the interesting and extensive clinical and other scientific research going on in the institutions related to the clinical work, and the gradual but certain development of a desire on the part of the majority of the clinical teachers still further to improve the clinical teaching by becoming an integral part of the university, led finally to a survey of medical conditions in Chicago by Mr. Abraham Flexner.

Mr. Flexner found all of the conditions suitable for a further and broader development of medicine at the University of Chicago and in the other institutions named. He estimated that the amount of capital engaged in medical teaching and in research at the University of Chicago, at Rush Medical College, the Presbyterian Hospital and at the two memorial institutions amounts to about $9,000,000. He estimated that properly to finance the broader, bigger medical plan as a graduate and undergraduate school under the administration of the University of Chicago, thus coordinating all of the work of the institutions named, would require an additional capital of $5,300,000, for buildings and endowment. In other words, he found the physical conditions, the proper point of view and the spirit of those engaged in the work in Chicago which justified the General Education Board in offering its aid to obtain the necessary capital to carry on the contemplated big medical plan in Chicago.

That the judgment of the General Education Board and of the Rockefeller Foundation would be justified in adopting the broad plan for medical education here, and in helping to finance it, has been proved by the fact that within two months of the time when the plan was adopted and the gifts of $2,000,000 by the General Education Board and the Rockefeller Foundation announced, the remaining $3,300,000 has been virtually subscribed.

I think your readers will understand why I attempted to define the motives which induced the General Education Board to endow medical education in certain universities. Philadelphia has been noted from our earliest days as a nation as a center of medical education. The University of Pennsylvania and Jefferson Medical School have long been known for their high standards of medical education. They have met the increasing demands of the knowledge of medicine in the underlying medical sciences, and they have had as clinical teachers some of the best-known physicians, surgeons and specialists of America. The student body has been of high grade, and the graduates of schools have started out more or less favored by the fact that the medical degree had been given by one of these institutions.

A year or more ago it was acknowledged that the University of Pennsylvania and Jefferson Medical College were to be merged into one teaching institution. That seemed a big step in advance. Those of us who desire to see the standards of medical education improved hope that that promise may yet be fulfilled.

Doubtless there are in Philadelphia some clinical teachers who have more or less faith, and I hope more, in the full-time plan. There must be in Philadelphia, as in all other big cities, many of the clinical teachers who bitterly oppose the plan. It is not a function of any of us to be critical of our brothers as to their point of view concerning the methods of clinical teaching. One can only say this, that based on the knowledge we have of the principles which govern the actions of the directors of the General Education Board in the endowment of medical education, that board is not likely to endow medical education anywhere until the boards of trustees of the universities and the faculties of medicine both of the fundamental and of the clinical branches bring about improved conditions in the standards of teaching and show a willingness to help finance higher medical education and to sacrifice themselves, if necessary, that the whole-time medical plan may be carried out.

It is my belief that within ten years virtually all university medical clinical teaching will be on full-time plan for the main branches of medicine and surgery; that the amount of capital required fully to carry it out will prevent its adoption in many medical schools, but it will gradually come and be adopted by one clinical chair at a time if it cannot be adopted as a whole by a university.

Within ten years I believe the great mass of present clinical teachers will recognize the wisdom of the principle of the full-time plan and the great majority of them will be glad to be relieved of the task of part-time teaching with little or no salary.

Chicago, Jan. 24, 1917. Frank Billings.

A DANGEROUS BILL

An Anti-Vaccination Bill with the following amendment has been introduced into the House of Representatives and demands attention. The prejudice against vaccination for smallpox still exists in our state to such an extent that a bill like this should have its disadvantages brought out before the Committee on Education (see advertising pages for its makeup) to which it has been referred:

> "Or if it is shown by the sworn certificate of a regular practicing physician that the health or physical condition of the child is such that vaccination would endanger the life or health of the child but that the child is free from any contagious ailment or affection such child shall be permitted to attend school until such time as it may be vaccinated without danger to its life or health when the provisions of this section shall be enforced."

CHRONIC DUODENAL INDIGESTION IN CHILDREN

This condition is said to occur most frequently in children after the first year, and especially in those who have suffered from dietetic errors, usually with antecedent contagious diseases, or from prolonged intestinal infections, and this is fully covered by Dr. John Foote, Washington, D. C., in the December *International Clinics.* This form of indigestion seems to be accompanied by deficiency of pancreatic ferments, especially lipase. A mild duodenitis, which either passes up the pancreatic duct, or diminished hormone formation, seems responsible for the condition. Diminished bile production may also be a factor. Anemia, loss of weight and mental underdevelopment occur. Large pendulous abdomen is common. Bottle feeding has been employed. Fever may be encountered, vomiting almost never. The number of daily stools varies from three to twelve. They are thin, contain some mucus and flakes of whitish material and have a very foul odor. They give an acid reaction and microscopically contain not only large quantities of fat soaps, but also a considerable amount of neutral fat, but rarely starch granules. It is to be differentiated from mesenteric tuberculosis and acute duodenal indigestion. The treatment consists in reducing the food elements which have proved indigestible, namely, the fat, and stimulating enzyme production by the administration of hydrochloric acid and pancreatic ferments.

SURGICAL EXPERIENCES WITH ENCAPSULATED EMPYEMA AND ABSCESS OF THE LUNG

A PLEA FOR EXPLORATORY THORACOTOMY

Typical cases, well illustrated, are presented by Dr. Astley P. C. Ashhurst of Philadelphia in the *International Clinics* for December, exhibiting the difficulties of recognizing and reaching pus within the pleura even when exploratory puncture is resorted to, while it is made plain how much can usually be obtained by surgical means. Refusal to operate when the needle fails to reveal pus at the time set for operation even though pus was previously found is bad surgery. The surgical technic is carefully described. Local anesthesia is preferred, the intercostal nerves above and below the rib to be resected being blocked with an injection of the anesthetic fluid, novocain or eucain being preferred. For abscess of the lung thoracotomy is preferred to the production of a therapeutic pneumothorax by Forlanini's method as the former gives better opportunity for locating and draining the abscess.

A CLINICAL CONSIDERATION OF MIGRAINE

Migraine is considered by the author as the most frequent headache, occurring in 700 of his 15,000 patients sick from all causes. He believes that the so-called acidosis in children may often be a forerunner of a well-established sick headache habit. The interesting relation between migraine and epilepsy deserves further study. Among the author's 15,000 patients epilepsy occurred in seven, and both migraine and epilepsy in seventy. Auerbach's theory which attributes migraine to an actual disproportion between skull-capacity and volume of brain, needs further proof. In the *International Clinics* for December Dr. John A. Lichty of Pittsburgh shows that the diagnosis is easy when there are headaches which are unilateral, periodical and hereditary, but when only one or two of these symptoms are present, or when there is only a periodicity of some of the minor symptoms or possibly of the aurae, the diagnosis may be difficult. Migraine is frequently mistaken for pelvic disease, for acidosis or cyclical vomiting in children, and organic disease, when some of the aurae are present. The psychasthenic and the gastric symptoms frequently lead to confusion in diagnosis. While the underlying causes of migraine are vague and furnish little light as to treatment, much can be done to ameliorate the symptoms by proper handling of the exciting causes that aggravate the patient's general condition and precipitate the attacks. Most thorough investigation and careful individualization are indicated. Systematic administration of the bromid salts and avoidance of undue fatigue are especially recommended.

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BLAIR—Walter S. Musser, M.D., Tyrone.
BRADFORD—G. H. B. Terry, M.D., Wyalusing.
BUCKS—Anthony F. Myers, M.D., Blooming Glen.
BUTLER—Alfred Henry Ziegler, M.D., Butler.
CAMBRIA—Frank G. Scharmann, M.D., Johnstown.
CARBON—James B. Tweedle, M.D., Weatherly.
CENTER—James L. Seibert, M.D., Bellefonte.
CHESTER—D. E. Hutchison, M.D., East Downingtown.
CLARION—J. F. Summerville, M.D., Monroe.
CLEARFIELD—John M. Quigley, M.D., Clearfield.
CLINTON—R. B. Watson, M.D., Lock Haven.
COLUMBIA—Luther B. Kline, M.D., Catawissa.
CRAWFORD—Cornelius C. Laffer, M.D., Meadville.
CUMBERLAND—Calvin R. Rickenbaugh, M.D., Carlisle.
DAUPHIN—Harry P. Eisenhart, M.D., Harrisburg.
DELAWARE—Walter E. Egbert, M.D., Chester.
ELK—John C. McAllister, M.D., Ridgway.
ERIE—T. M. M. Flynn, M.D., Erie.
FAYETTE—Arthur E. Crow, M.D., Uniontown.
FRANKLIN—John J. Coffman, M.D., Scotland.
GREENE—Thomas B. Hill, M.D., Waynesburg.
HUNTINGDON—Cloy G. Brumbaugh, M.D., Huntingdon.
INDIANA—Alexander H. Stewart, M.D., Indiana.
JEFFERSON—John H. Murray, M.D., Punxsutawney.
JUNIATA—William H. Banks, M.D., Mifflintown.
LACKAWANNA—Arthur E. Davis, M.D., Scranton.
LANCASTER—Henry B. Davis, M.D., Lancaster.
LAWRENCE—William A. Womer, M.D., New Castle.
LEBANON—George R. Pretz, M.D., Lebanon.
LEHIGH—Thomas A. Weaber, M.D., Allentown.
LUZERNE—Lawrence A. Sheridan, M.D., Wilkes-Barre.
LYCOMING—Wesley F. Kunkle, M.D., Williamsport.
McKEAN—James Johnston, M.D., Bradford.
MERCER—Patrick E. Biggins, M.D., Sharpsville.
MIFFLIN—Paul M. Allis, M.D., Lewistown.
MONROE—Esther W. Gulick, M.D., Stroudsburg.
MONTGOMERY—Benjamin F. Hubley, M.D., Norristown.
MONTOUR—Cameron Shultz, M.D., Danville.
NORTHAMPTON—Walter D. Chase, M.D., Bethlehem.
NORTHUMBERLAND—Horatio W. Gass, M.D., Sunbury.
PERRY—A. Russell Johnston, M.D., New Bloomfield.
PHILADELPHIA—Samuel McClary, 3d, M.D., Philadelphia.
POTTER—Elwin H. Ashcraft, M.D., Coudersport.
SCHUYLKILL.—George O. O. Santee, M.D., Cressona.
SNYDER—John O. Wagner, M.D., Beaver Springs.
SOMERSET—H. Clay McKinley, M.D., Meyersdale.
SULLIVAN—Carl M. Bradford, M.D., Forksville.
SUSQUEHANNA—Dever J. Peck, M.D., Susquehanna.
TIOGA—Harry C. Harkness, M.D., Mansfield.
UNION—William E. Metzger, M.D., Alvira.
VENANGO—J. Irwin Zerbe, M.D., Franklin.
WARREN—Ira A. Darling, M.D., Warren.
WASHINGTON—John B. McMurray, M.D., Washington.
WAYNE—William T. McConvill, M.D., Honesdale.
WESTMORELAND—Elsner L. Piper, Export.
WYOMING—Herbert L. McKown, M.D., Tunkhannock.
YORK—Charles H. May, M.D., York.

All communications should be addressed to the PENNSYLVANIA MEDICAL JOURNAL, Athens, Pa.

The Medical Society of the State of Pennsylvania does not assume responsibility for any statements or opinions published in this Journal.

ATENS, PA., FEBRUARY, 1917

REPORT FROM LEGISLATIVE CONFERENCE OF THE MEDICAL PROFESSION OF PENNSYLVANIA

To this date, February 5, the Legislature has not given us any opportunity to do anything toward furthering our object. On January 31 President Codman, President-Elect Dixon, Dr. Estes and myself, representing the Medical Society of the State of Pennsylvania; President Krusen, and Drs. Swartz of Harrisburg and Kline of Reading, representing the Homeopathic State Society, met the Workmen's Compensation Bureau and as a result we have decided to limit our amendments as follows:

First. That the period of disability for medical attention, which now is fixed at fourteen days, be changed to thirty days, during which time the employer shall furnish reasonable surgical, medical and hospital service, together with the necessary medicines and supplies, free of charge to the injured employee. And that the date of disability be dated from the time the patient reports to the physician or surgeon for medical or surgical treatment.

Second. That the words "major operation' be eliminated from the act, and the increase permitted for medical and surgical treatment be changed from $75 to $200, and allow a sliding scale of fees, the rates of charge to correspond with those the physician in charge is accustomed to receive for like services from other members of the same standard of living in his community.

This then is what we shall ask the Legislature to do in order that the law may be made just to the medical profession. Every physician in the state, whether directly affected by the working of the law or not, should inform himself of these purposes of your committee, and help to accomplish these amendment. This is something definite to discuss with your legislators. Impress on them that it is not a raising of fees by the profession, but only a demand for just compensation for the work the doctor is required to do under the Compensation Law. We are as ready as ever to give our services to charity, but compensation work is not charity, and it is not the intent of the law that the medical profession should bear the burden of its administration. Every physician can illustrate to his legislator any number of cases in which the present limit of fourteen days is insufficient, and $75 does not nearly cover even moderate expenses of many cases. It is not just that we be required to work without pay. We only ask the right to be compensated a reasonable amount for the services rendered. Many states have the limit of $200 in their law, and in Ohio the statistics show that in only one half of 1 per cent. does the expense reach the $200 limit.

It has been pointed out that this law was passed in a period of business depression, when the outlook was gloomy to the employer of labor, and from the same authorities that medical expenses were kept down as much as possible. This reasoning does not hold good in these prosperous times. The medical profession believing this law was intended to be a humanitarian law, at the time of its drafting did not make any selfish demands for high compensation, but accepted it with its usual spirit of charity and generosity. Now that it has been sufficiently tested we must not be misunderstood when we ask that the law be amended so as to give a just fee for work performed, and at the same sime provide better and more prolonged treatment for the injured. The best service and good will of the medical profession is requisite for the success of this law.

This committee in December addressed a letter to each county society requesting information regarding the members of the Legislature, and it has received fairly encouraging replies from about twenty counties. What the other forty counties are doing, we do not know. It is your battle and if your Senator and Representative are not impressed by your efforts, no one else is to blame. When the amendment is placed on the legislative calendar you will be notified of its number, as members of the Legislature usually know a bill best by its number.

J. B. McAlister, Chairman.

LEGISLATIVE MEMBERS AND COMMITTEES

The January issue contained a list of the members of the State Senate and House of Representatives with their home addresses. There will be found in our advertising pages a list of the members of the more important committees of both the Senate and House of Representatives. These members can be addressed either at Harrisburg or their home addresses. When writing them always give your reasons for asking them to favor or oppose any measure, and take pains to express yourself so that your letter will have weight. It is not enough to say that the doctors are for or against a bill, good reasons should be given for favoring or opposing a bill. When a bill is introduced into the House it is given a number and then known as House Bill No. so-and-so and is at once referred to some one of the committees. The committee will consider the bill before it again comes before the House. When a bill is introduced into the Senate it goes through the same routine, but is known as Senate Bill No. so-and-so.

THE PROGRAM FOR THE PITTSBURGH SESSION

The Committee on Scientific Program held a preliminary meeting in Philadelphia recently. At this time the scope of the subjects to be covered at the Pittsburgh Session was outlined. The committee feels that the members of the society have not been alert to the opportunities offered them to be heard in the society meetings. The best work of our members should be presented at the state society sessions. The committee, therefore, invites the members to send in, with short abstracts, the titles of papers they would like to present. Such offers should be sent to the section officers or to the chairman of the committee, the names and addresses of whom may be found on advertising page vi. All such offers will receive careful consideration. We solicit the cooperation of all members.

Henry D. Jump.

"ONE BRAIN CELL MAY PARALYZE AN ARM"

There will be found in the advertising pages of this issue a selection, "A Message from the Moderator," which is well worth reading, and it is suggested that our members when reading it keep in mind their relations to organized medicine. The American Medical Association is composed of the members of the fifty-two state and district societies, each state society is composed of the members of the county societies of the state, and each county society is composed of such physicians as have been elected to membership. The efficiency of the county, state or national society is the sum total of the efficiency of the individual members, and nothing more. Any individual physician may be a "very insignificant member of the body, but one brain cell may paralyze an arm." If a county society simply "existed for its own sake, it would be better to cut the sick members off, that the rest, though crippled, might enjoy good health." But each medical society, be it county, state or national, "exists for the world. . . . Its business is to save, not to excise; to treat and cure, not to amputate." And yet there are some county societies that seem to think that the society exists for the selfish interests of those who are already members, regardless of other physicians in the county, and regardless of the good name and influence of the profession as a whole.

The point to be emphasized in connection with the selection referred to, however, is the responsibility of the individual to the society, rather than the duty of the society to the individual. "No member is functioning aright unless he has his shoulder to the wheel and is pushing hard. He has no holding-back straps, he is equipped only with pulling chains." The Medical Society of the State of Pennsylvania is just what its members make it, and what it accomplishes in 1917 will be the sum total of what is accomplished by the individual members.

"AS OTHERS SEE US"

An editorial in *The Journal of the Michigan State Medical Society* says that "The public appraises us as a group by the impression conveyed to them by the isolated acts of the individual," gives instances where physicians in that state have injured themselves and dishonored the profession by " 'farming' cases that come to doctors under the provisions of our Workmen's Compensation Act," and closes with the following paragraphs:

> True these are but three isolated instances. Many similar cases exist and the sad part is that repetitions are occurring with increased frequency. Corporations, factories, firms and insurance companies are not asleep and unscrupulous doctors, yes and there are some who occupy prominent positions in communities, need not delude themselves that they have in the Compensation Act a medium for "easy pickings" among employers of labor. Claims are being investigated and it is sometimes surprising how these keen and alert investigators "dig up" facts.
>
> We intend this as a warning and regret its necessity. If we desire fair treatment we must play fair, act fair and be judged honest as individuals for we, as a profession, are being judged by our individual acts. To persist will mean that these business men will stack their collective influence against ours when we appear before legislative committees.

The great majority of Pennsylvania physicians when treating injured workmen are anxious to give both the workman and his employer a square deal, but occasionally one is found who overreaches himself and discredits the profession. Not a few of our physicians have had reason to complain of the treatment received by insurance and casualty companies, but it is hoped that none of these companies have found any of us physicians neglecting injured workmen or charging more than a reasonable fee in any case. A few years ago the commissioners of one of our counties discontinued the plan of allowing the indigent poor to select their own physicians and "farmed out" the county work to the lowest bidder for each township and borough. When the medical society for that county objected it was shown that one officer of that society had charged the county just double the fees in a protracted case that he had charged one of the commissioners for a like service. Surely "none of us liveth to himself."

HONOR ROLL FOR 1917

The following societies have paid for at least 75 per cent. of their 1916 membership. The figures indicate the percentage of members paid:

	Per Cent.
Greene County	100
Sullivan County	100
Adams County	96
Juniata County	91
Union County	81
Montour County	75
Wyoming County	75

The Honor Roll for next month will consist of those societies that have paid for as many 1917 members as they had in 1916.

CHANGES IN MEMBERSHIP OF COUNTY SOCIETIES

The following changes have been reported since the January Journal was printed, up to February 2:

Adams County: *Resignation.*—Burt J. Aspers.

Allegheny County: *New Member.*—Daniel F. McIntosh, Sharpsburg. *Deaths.*—David Chancellor Boyce (Univ. of Pennsylvania, '92) in Pittsburgh, January 12, from pneumonia, aged 49; Henry D. Fulton (Jefferson Med. Coll., '83) in Pittsburgh, December 24, from valvular heart disease, aged 57; Joseph H. McKee (West Penn. Med. Coll., Pittsburgh, '91) in Carnegie, December 25, from pneumonia, aged 54. *Removals.*—Morris A. Slocum from Pittsburgh to 378 Butler Street, Etna; William J. Sterritt from East Pittsburgh to 381 College Avenue, Beaver Falls (Beaver Co.).

Armstrong County: *New Members.*—James R. McDowell, Intake, Mont.; Clarence C. Parks, Thomas L. Van Giesen, Leechburg.

Blair County: *Death.*—George A. Ickes (Jefferson Med. Coll., '86) in Altoona January 9, as the result of a fall on the ice December 31, at which time he injured his spine, producing partial paralysis followed by pneumonia, aged 62. *Removal.*—David F.

Haagen from Altoona to 338 West Fifty-First Street, New York City.

Bradford County: *Death.*—Francis Chaffee (Coll. of Phys. and Surg., Baltimore, '80) of Towanda, at Sayre, January 28, from gangrene.

Cambria County: *New Member.* — Harry T. Prideaux, Cresson. *Removal.*—William S. Wheeling from Spangler to Windber (Somerset Co.).

Carbon County: *Death.*—Wilson L. Kutz (Jefferson Med. Coll., '78) in Weissport, December 23, from malignant disease, aged 62. *Removal.*—Thomas V. Buckley from Lansford to Girardville (Schuylkill Co.).

Center County: *No Longer a Member.*—Penrose H. Shelley.

Columbia County: *Correction.*—The Journal was wrongly informed last month regarding Dr. George E. Follmer of Orangeville, who is living and in good health.

Crawford County: *Removal.*—A. Girard Cranch from Riceville to c/o General Electric Company, Erie (Erie Co.).

Cumberland County: *New Member.*—Harold H. Longsdorf, Dickinson.

Dauphin County: *New Members.* — B. Milton Garfinkle, Arthur Hull, Harrisburg.

Erie County: *Death.* — Frank Gamon (Medico-Chirurgical Coll., Philadelphia, '03) in Erie, December 23, aged 36. *Removal.* — George B. Kalb from Erie to American Bank Building, Monrovia, Calif.

Fayette County: *New Member.*—A. D. Hunger, Point Marion.

Franklin County: *Death.*—Charles M. McLaughlin (Jefferson Med. Coll., '89) in Greencastle, January 6, from chronic endocarditis, aged 56.

Indiana County: *New Member.*—George R. Lyon, Heilwood.

Lackawanna County: *New Members.*—Frank T. Budd, Helen Houser, William J. O'Malley, Scranton. *Death.*—James J. Walsh (Jefferson Med. Coll., '11) of Olyphant, in Scranton, recently, from diphtheria, aged 29.

Lancaster County: *Death.*—Joseph A. E. Reed (Pennsylvania Med. Coll., Gettysburg, '54) in Lancaster, January 3, aged 84.

Lawrence County: *Removal.*—Victor C. Wagner from West Pittsburg to New Castle.

Lehigh County: *New Member.*—William Jackson Schatz, Allentown. *Death.*—Horace B. Erb (Medico-Chirurgical Coll., Philadelphia, '88) in Allentown, January 24, after a short illness with grip and pneumonia, aged 57. *Removal.*—Charles B. Reitz from Allentown to Bare Hospital, McAllen, Tex.

Luzerne County: *New Members.* — Jefferson P. Biehl, Harry G. Templeton, Plymouth.

Lycoming County: *New Member.*—Woods F. Derr, Williamsport. *Death.*—Eugene B. Campbell (Jefferson Med. Coll., '73) in Williamsport, January 7.

Montgomery County: *New Members.*—Walter A. Blair, Norristown; Robert G. Gamble, Haverford.

Northampton County: *Death.*—Albert A. Seem (Jefferson Med. Coll., '65) of Bangor, in Los Angeles, January 5, aged 73.

Somerset County: *New Member.*—Benjamin H. Long, Jenners. *Removal.*—George B. Masters from Berlin to Rockwood.

Tioga County: *New Member.*—Henry E. Caldwell, Cincinnati, Ohio.

Union County: *New Member.* — Mary M. Wolf, Lewisburg.

Washington County: *New Member.* — William Lincoln Dodd, Amity.

Wyoming County: *New Member.*—H. M. Capwell, Meshoppen.

York County: *New Member.*—Pius A. Noll, Glen Rock. *Death.*—Alfred Myers (Jefferson Med. Coll., '75) in York, January 5, aged 62.

PAYMENT OF PER CAPITA ASSESSMENT

The *per capita* assessment for the year 1917 has been received from component county societies since January 13, as acknowledged on page 299 of the January Journal, as follows:

Jan. 15,	Somerset	9	596	$ 2.75
	Cambria	51–61	597–607	30.25
	Beaver	2–23	608–629	60.50
	Adams	1–17	630–646	46.75
	Mercer	3–14	647–658	33.00
Jan. 16,	Cumberland	12	659	2.75
	Washington	1–41	660–700	112.75
	Franklin	3–4	701–702	5.50
Jan. 17,	Clarion	2–22	703–723	57.75
Jan. 18,	Union	10–12	724–726	7.25
	Lehigh	5–39	727–761	96.25
	Luzerne	1–47	762–808	129.25
	Dauphin	14–20, 22–66	809–860	143.00
	Montgomery	51–60	861–870	27.50
	Franklin	5–11	871–877	19.25
Jan. 19,	Butler	20–26	878–884	19.25
	Northumberland	27–30	885–888	11.00
	Somerset	10–11	889–890	5.50
	Cumberland	13	891	2.75
Jan. 20,	Cumberland	14–15	892–893	5.50
	Bradford	21	894	2.75
	Columbia	21–25	895–899	13.75
Jan. 22,	Armstrong	33–37	900–904	13.75
	Adams	18–22	905–909	13.75
	Juniata	10	910	2.75
Jan. 23,	Montour	1–15	911–925	41.25
	Cumberland	16–17	926–927	5.50
	Berks	39–42	928–931	11.00
	Greene	19	932	2.75
Jan. 24,	Potter	2–7, 9–11	933–941	24.75
	Luzerne	48–49, 54–69	942–959	49.50
	Erie	7–8	960–961	5.50
Jan. 26,	Montgomery	61–70	962–971	27.50
	Union	13	972	3.75
	Sullivan	1–10	973–982	27.50
	Delaware	1–13	983–995	35.75
	Cumberland	18	996	2.75
	York	47–60	997–1010	38.50
	Northampton	20–46	1011–1037	74.25
Jan. 28,	Cumberland	19	1038	2.75
	Clinton	2–6	1039–1043	13.75
Jan. 30,	Susquehanna	1–11	1044–1054	30.25
	Mifflin	1–12	1055–1066	33.00
Jan. 31,	Clinton	7	1067	2.75
	Mercer	15–18	1068–1071	11.00
	Fayette	38–44	1072–1078	19.25
	Lycoming	1–24, 26–46	1079–1123	123.75
	Westmoreland	23–34	1124–1135	33.00
	Somerset	12	1136	2.75
	Center	1–9	1137–1145	24.75
Feb. 1,	Carbon	1–12	1146–1157	33.00
Feb. 3,	Carbon	13–16	1158–1161	11.00
	Huntingdon	18–23	1162–1167	16.50
	York	61–70	1168–1177	27.50
	Lawrence	23–30	1178–1185	22.00
Feb. 5.	Mifflin	15–21	1186–1192	19.25

	Bedford	3–5	1193–1195	8.25
	Clarion	23–27	1196–1200	13.75
	Blair	1–25	1201–1225	68.75
Feb. 6,	Clinton	8	1226	2.75
	Berks	43–44	1227–1228	5.50
Feb. 7,	Mercer	19–35	1229–1245	46.75
	Mifflin	13, 14, 22	1246–1248	8.25
	Montgomery	71–80	1249–1258	27.50
	Fayette	45–69	1259–1283	68.75
Feb. 8,	Clearfield	12–23	1284–1295	33.00
	Cumberland	20–21	1296–1297	5.50
	Northumberland	31–37	1298–1304	19.25
	Delaware	14–34	1305–1325	57.75
	Luzerne	50–53, 70–82	1326–1342	46.75
	Franklin	12–17	1343–1348	16.50
	Allegheny	1–265, 267–501	1349–1848	1,375.00
Feb. 10,	Somerset	13	1849	2.75
	Potter	12–14	1850–1852	8.25

STATE NEWS ITEMS

BIRTHS

To Dr. and Mrs. Charles B. Worden, Philadelphia, January 18, a son.

MARRIAGES

Dr. William John Gatti and Miss Rose Wery, both of Punxsutawney, November 15.

Dr. Barbara F. Kuntz, Williamsport, and Dr. Bernard S. Strait, Pen Yan, N. Y., January 16.

Dr. Thomas C. Stellwagen, Jr., and Miss Elizabeth Charlotte Coane, both of Philadelphia, February 14.

Dr. James Roy Freeland, Pittsburgh, and Miss Katherine Palmer Moore, New York City, December 28.

Dr. Theodore Livingston Chase and Miss Agnes Barr, both of Philadelphia, in New York City, December 6.

DEATHS

Dr. Charles Edward Humphrey (Univ. of Pennsylvania, '63) in Bethlehem, January 20, aged 75.

Dr. Noble T. Jerman (Hahnemann Med. Coll., Philadelphia, '73) in Philadelphia, January 8, aged 66.

Dr. Albert Weeks (Jefferson Med. Coll., '80) in Phoenixville, December 27, from erysipelas, aged 58.

Dr. James Bingham (Western Reserve University, Cleveland, '68) in Washington, December 25, aged 84.

Dr. Richard Biddle Faulkner (Coll. of Phys. and Surg., New York, '75) in Pittsburgh, December 20, aged 63.

Dr. William S. McCormick (Medico-Chirurgical Coll., '03) in Philadelphia, December 30, from diabetes, aged 40.

Dr. James Logan Brown (license, twenty years' practice, '81; Westmoreland County) in Pleasant Unity, January 13, aged 72.

Dr. Louis Watson Raison (Med. Coll. of Ohio, Cincinnati, '84) in Altoona, January 5, from bronchopneumonia, aged 63.

Dr. George W. Bailey (Univ. of Pennsylvania, '68) of Philadelphia, in Battle Creek, Mich., December 19, from disease of the liver, aged 76.

Dr. John J. Crawford (Jefferson Med. Coll., '82) of Coraopolis, was killed in an automobile accident at McClaren's Mills, January 11, aged 57.

Dr. Joseph Weatherhead Warren (University of Bonn, Germany, '80) in Harrisburg, December 20, from disease of the kidney, aged 67.

Dr. Harry Blair Warriner (Maryland Med. Coll., Baltimore, '12, Hahnemann Med. Coll., Philadelphia, '14) in Philadelphia, January 4, from pneumonia, aged 28.

ITEMS

Lehigh County Medical Bulletin made its first appearance last month. Which county next?

The German Hospital, Philadelphia, receives $5,000 by the will of the late Otto C. Wolf.

Dr. Walter Lathrop, Hazleton, submitted to an operation in Baltimore last month.

Dr. M. Edith MacBride, formerly of Grove City, has been appointed chief resident physician at St. Vincent's Hospital, Erie.

Dr. Lawrence A. Sheridan has been elected president of the medical and surgical staff of Mercy Hospital, Wilkes-Barre.

Dental Examinations. — Twenty-five dentists passed the state dental examining board last month and were given their licenses.

Dr. Richard M. Pearce of the University of Pennsylvania sailed January 15, for Argentina and Uruguay, to study medical conditions in those countries.

Dr. Charles K. Mills was elected president of the Medical Club of Philadelphia at its annual meeting January 19, and Dr. William S. Wray, secretary.

Dr. W. W. Keen, Philadelphia, gave the concluding Colver Lecture at Brown University, January 17, his subject being "Medical Research and Human Welfare."

Typhoid Fever in Rush Township, Center County. —More than one hundred cases of typhoid fever have developed in this locality during 1917, with four deaths.

Dr. Charles H. Frazier gave a public lecture in Houston Hall, Philadelphia, February 3, his subject being "This Generation and the Next in Relation to the Mentally Defective."

The University of Pennsylvania Hospital admitted 6,677 patients during 1916, 355 more than in 1915. The total number of patients treated in the various dispensaries was 20,036.

The Allegheny County Medical Society at its annual meeting, January 9, elected Dr. John M. Thorne president and reelected as secretary and as treasurer Drs. Carey J. Vaux and William C. Bryant.

The Westmoreland County Medical Society held a chop suey smoker at the Elk's Club House, Greensburg, Thursday evening, January 18. The National Quartet of Pittsburgh furnished the music.

Dr. Vincent Z. Keeler, Harleysville, had a narrow escape from drowning January 19, when his horse shied and plunged over the side of a bridge into Skippack Creek, where the water was four feet deep.

Dr. George W. Berntheizel, Columbia, was elected president of the Columbia College of Physician and Surgeons at their annual session and banquet, January 23, and Dr. Charles Stahr, Lancaster, was elected secretary.

The Wyoming County Medical Society at its annual meeting in January elected officers for the ensuing year and decided to hold a public meeting on June 20, 1917, at which the subject of tuberculosis will be presented.

The Philadelphia County Medical Society at its annual meeting January 17, elected Dr. Henry D. Jump president and reelected Drs. William S. Wray, Elmer H. Funk and Edward A. Shumway, secretary, assistant secretary and treasurer, respectively.

The Mifflin County Medical Society held its annual meeting and banquet at the Coleman House, Lewistown, January 4. Retiring President Rupp, delivered an address and Dr. B. R. Kohler, the newly elected president outlined a progressive policy for the society for the coming year.

Larger Library.—John Welles Hollenback, Wilkes-Barre, has presented the Luzerne County Medical Society with $10,000, to be used for the purchase of books. The library already has 7,000 books and, with this gift, will have the largest medical library in the state outside of Philadelphia and Pittsburgh.

Norristown's Death Rate.—Health Officer Charles E. White has taken exception to the report of the Bureau of Census for 1915, that the death rate exceeded the births. After excluding the persons who died at the State Hospital for the Insane and also the deaths at Charity Hospital, the death rate is 13 per thousand instead of 21.7.

Infantile Paralysas.—Three cases of infantile paralysis were reported to the State Department of Health December 2. There were 110 cases in July, 714 in August, 778 in September, 364 in October, and 35 in November. There were 494 deaths from the disease from July 1 to December 1. The cost of the state's fight against the disease from July 1 to October 1, was $61,004, not including money paid to the regular officers of the department.

License Test Case.—John A. Seibert, Philadelphia, a neuropath, was convicted, January 30, before Judge Martin in Quarter Sessions Court for practicing medicine without a license. The prosecution was brought by the State Bureau of Medical Education and Licensure, and was a test case to determine whether neuropaths are compelled to be licensed. Sentence was deferred until the disposition of a motion for a new trial should be announced.

Symposium on Military Surgery.—The program of the College of Physicians of Philadelphia for January 22 was devoted to "Military Surgery, Based on Experiences in the American Ambulance." Dr. Fred T. Murphy, St. Louis, read a paper on "The Result of Operations on Bones"; Dr. Robert D. Osgood, Boston, discussed the "Orthopedic Phases of Military Surgery"; Dr. Charles F. Mitchell read a paper on "Compound Fractures," and Dr. Richard H. Harte one on "Plastic Operations."

Public Lectures at Woman's College.—The Woman's Medical College is again furnishing two public courses for women. The following are some of the subjects treated during the three months' course: First Aid, Heat Prostrations, Drowning and Poisoning, Health Problems of Every Day Life, Houses and Sanitation, Principles of Nutrition, Food and Efficiency, Health Problems of Girls and Women, Pre-Natal Care and the Newborn Baby, Care and Feeding of Children, the Importance of the Common Cold, and the Care of the Teeth.

The Lehigh Valley Medical Association held its twenty-ninth winter meeting at Palmerton, February 1. The plants of the New Jersey Zinc Company are located at Palmerton. The principal address was by Dr. Francis D. Patterson, chief of the Division of Industrial Hygiene and Engineering, Department of Labor and Industry, who expressed the belief that medical colleges spend too much time with diseases like yellow fever, which the students may never see, and too little about lead poisoning and other occupational diseases. There were also present and taking part in the meeting F. P. Sinn, manager of the zinc works and president of the Lehigh Safety Council; George T. Fonda, safety engineer of the Bethlehem Steel Company, and Edward C. Spring, superintendent and safety expert of the Lehigh Valley Transit Company.

The Northumberland County Medical Society held its annual meeting and banquet at Hotel Winsor, Shamokin, January 17, with about thirty members present and as guests of the society, Dr. John B. McAlister of Harrisburg, Senator W. C. McConnell of Shamokin, and Messrs. Robertson, Helt and Clements, members of the legislature from Northumberland County. The purpose of the meeting was to discuss the Compensation Act, and Dr. McAlister was the principal speaker for the physicians. He said that the state is taking a more active part in the prevention of disease today than at any time previous, and the physician is the chief ally in the preservation of state health. The fourteen-day limit for compensation should be extended to at least thirty days, and the minimum charge to $200. Attorney Charles K. Morgenroth presented an argument on the right of the injured workingman to select his own physician. Senator McConnell responded for the guests, saying that they would be glad at any time to consider matters pertaining to the welfare of the profession, if they were properly presented.

The Committee on Public Policy and Legislation of the Philadelphia County Medical Society, consisting of Drs. Charles A. E. Codman, William H. Walsh, Frank C. Hammond, John B. Roberts and John M. Fisher, presented an exhaustive report which was adopted by the society. The report considered the following subjects: Workmen's compensation, dispensary abuse, fraudulent medical advertising, narcotic drug addiction, patented medicinal substances, national leprosarium, medical defense and social insurance.

The part of the report referring to workmen's compensation is practically the same as that presented by the state society's Committee on Public Policy and Legislation to the Workmen's Compensation Board at a conference held in Harrisburg, January 31. The following excerpts from the report will be of general interest:

DISPENSARY ABUSE

The three most important factors concerned in the abuse of the dispensary privilege are: First, the hospital; second, the patient; and last, the doctor who treats him. Lacking any one factor, the dispensary cannot exist, much less can there be any abuse. It is parodoxical and misleading for the physician to protest against a practice which he daily supports; and until this fact is fully realized by the organized medical profession there can be no hope for improvement.

Your committee would suggest the following recommendations: (a) That a resolution be adopted by this body calling attention to the present conditions and to the fact that they exist by reason of either the inactivity, indifference, or cooperation of the medical profession. (b) That the practice of treating patients able to pay a reasonable fee, either *within* or *without* hospitals, is a practice inimical to the interest of the profession. (c) That physicians, who are now working without remuneration in hospital dispensaries, request the management of such to institute an efficient system of investigation of the social and financial status of each patient admitted, and that each such patient be supplied with evidence of this investigation before presentation to the physicians for a second treatment. (d) That the society disapprove of its members rendering free service to dispensary patients who are able to pay, and that a pledge covering this matter be exacted from each new member before his acceptance. (e) That a copy of these resolutions be sent to the president of the Board of Managers of each hospital in Philadelphia.

FRAUDULENT MEDICAL ADVERTISING

It has become evident to your committee that so long as medical advertisements do not make claims that are notoriously false and fraudulent, it is futile to attempt any legal procedures looking to their suppressions. The acceptance of such matter by newspapers is a purely business proposition, and unless the publishers are endowed with unusual intellectual alertness, unfounded and misleading claims are always creeping into much of the advertising matter offered. In such cases it is often possible, by directing attention to these misrepresentations, to obtain the cooperation of the editors, and their promise either to insist on changes or to refuse the copy. Some newspapers have adopted the policy of refusing all medical advertisements, on the general principle that by no other means can objectionable advertising be excluded, but your committee is not agreed that such a policy is just to all concerned. There are a large number of external remedies, mineral waters, antiseptics, etc., which, from the standpoint of the public welfare, are in no way objectionable unless unwarranted claims as to their virtues are made. With regard to those vicious and notorious nostrums that are a snare and a delusion, flaunting their false claims in such a manner as to delude the sick and unfortunate, there need be little question as to the line of action to pursue.

After much thought and a careful study of the situation your committee would offer the following recommendations: (1) That this committee be authorized to consult with the prosecuting attorney with the object of instituting proceedings against fraudulent advertising under the provisions of the Act of Assembly of March, 1913, entitled "An Act to Prohibit the Making or Dissemination of False or Misleading Statements or Assertions Concerning any Merchandise, Securities or Services; and Providing Penalties for the Violation Thereof." (2) That for the proper preparation of the cases selected for prosecution, this body appoint a Council on Pharmacy and Chemistry, the members of which council shall be requested to analyze and report on samples of the preparations selected.

Your committee feels assured that this is one of the most far-reaching recommendations ever offered to the society, and that no greater service can be rendered to the community than the action suggested, promising, as it does, the complete elimination of the worst forms of fake advertising.

NARCOTIC DRUG ADDICTION

The prevalence of narcotic drug addiction, and the inefficiency of the federal antinarcotic law are so well known to the members of this body that your committee will waste no time on these topics, particularly since they have been so ably compiled and presented by others.

During the year 1915 a group of public spirited men formed themselves into a committee, privately collected a sum of money, and immediately commenced an investigation of the actual conditions existing in this vicinity. As a result of the findings of this committee, certain recommendations were made and the tentative draft of a bill drawn up, both of which are heartily endorsed by your committee and their adoption urged.

"The committee, therefore, presents these two recommendations: (1) That the commonwealth make provision for the adequate and efficient treatment of drug inebriates. The best results in the treatment of drug addicts are reported where there were available facilities for after-care following a period of hospital treatment. The state farm colonies, or institutions, provide this kind of care. Therefore, the early building and completion of the Pennsylvania Institution for Inebriates, for which a site was selected and approved by Governor Tener, but no appropriation for its purchase made by the legislature of 1915, is urgent. Special provision for the drug inebriate, who differs essentially from the alcoholic, should be considered in the plans of this institution. (2) That the legislature of the commonwealth of Pennsylvania shall give to the people of the commonwealth a law that will make possible more strict control of the manufacture, sale and use of opium, coca and their derivatives, and to cover those features of the misuse of drugs not covered by the federal law. On this basis the Act suggested in this report is offered and recommended."

GENERAL NEWS ITEMS

Dr. John W. Chambers, Baltimore, a pioneer in the use of laryngeal intubation, died in Dubois, Pa., January 21, aged 64.

The Infantile Paralysis Epidemic at Elkins, W. Va., seems to have been checked. Up to January 30 there were seventeen cases with two deaths.

Dr. John S. Billings has resigned as deputy commissioner of health and director of the bureau of preventable diseases, New York Department of Health, with which he has been connected for twenty years.

The New York College of Dentistry announces that it will hold a free dental clinic at 205 East Twenty-Third Street, on Saturday afternoons, for children between the ages of 7 and 14. There will be ninety chairs available.

American Doctors for England.—The London *Daily Telegraph* is authority for the statement that arrangements are being made to employ American surgeons in the hospitals so as to release the younger surgeons for army service.

Health Insurance and the Medical Profession is the title of a paper by Alexander Lambert, M.D., New York, published in *The Journal of the American Medical Association* for January 27. Every physician should read it as a matter of general information.

New York Session of the American Medical Association.—*The Journal of the American Medical Association* for February 3 gives particulars regarding the 1917 Session which will be held in New York during the week beginning Monday, June 4, with headquarters at the Astor House.

War on Narcotics.—The Atlantic County Medical Society in session at Atlantic City, N. J., January 12, gave notice to its members that summary expulsion for any member who hereafter may be found guilty of aiding or abetting, or in any manner trafficking in the illegal use of habit-forming drugs.

Dr. Herman M. Biggs, New York State Commissioner of Health, has been granted a leave of absence to go to France to make a survey of the tuberculosis situation behind the trenches, to study measures for its relief, and to ascertain along what lines American assistance may be made most effective. This work is being undertaken by the Rockefeller Foundation.

The Rhode Island Medical Journal, succeeding the *Providence Medical Journal,* made its first appearance last month, with Roland Hammond, M.D., editor and the Rhode Island Medical Society as owner and publisher. The excellent character of this and some of the other state medical journals cannot help but have a favorable influence on some of us older state journals as well as on the profession in their respective states.

Prize Offered by Industrial Medical Association.—The American Association of Industrial Physicians and Surgeons offers a prize of $100 for the best thesis on any subject relating to industrial medicine and surgery by any undergraduate medical student of the United States. The thesis must not contain more than 5,000 words and must be in the hands of Dr. Harry E. Mock, 122 South Michigan Avenue, Chicago, secretary of the association, on or before May 1, 1917.

Sargol Exploiters Found Guilty.—The case of the United States against Wylie B. Jones and H. E. Woodward, proprietors of "Sargol," came to an end, Jan. 30, 1917, after a trial lasting thirteen weeks. Sargol is a fraudulent nostrum sold as an alleged flesh builder and exploited from Binghamton, N. Y. The trial took place in Auburn, N. Y., and was one of the most bitterly contested "patent medicine" cases in the annals of the federal court. Jones and Woodward were found guilty as charged in the indictment.

Cancer Mortality.—A bulletin from the Bureau of the Census, dated January 15, says that the mortality from cancer and other malignant tumors in the death-registration area of the United States has been increasing almost continuously for the past fifteen years. It is greater in urban than in rural localities; among females than among males; among whites than among negroes; and among persons in middle life and old age than among those in early life. Deaths due to cancer of the stomach and liver represent more than three eighths of the total.

Dr. George W. Bailey, Philadelphia, died at Battle Creek, Mich., Dec. 20, 1916, aged 76. As a young man he was a soldier in the Civil War, and a schoolteacher during the years he was preparing to enter the medical profession. After graduating from the University of Pennsylvania he practiced in Philadelphia but undermining his health by overwork he found it necessary to give up practice. Later he was very successful in the coal business and since 1892 had given his whole time to Sunday school work. In 1893 he was put in charge of the finances of the whole Sunday school movement, and his larger work began. At San Francisco he was elected a life member of the international executive committee, and to him were entrusted the arrangements for the great World Sunday School Convention at Washington, D. C., in 1910. That convention was a notable success, and it showed its appreciation of Dr. Bailey's services by electing him president of the World Sunday School Association.

Vaccination Decision.—In 1916 suit was brought by citizens of Henry County, Kentucky, to enjoin the county board of health from enforcing an order of the county board of health requiring all teachers and pupils in the public schools to be vaccinated. In a decision by the Court of Appeals of Kentucky, printed in full in *Public Health Reports,* Dec. 29, 1916, the court held that the evidence showed that the board was justified in its order, that a matter of such vital importance to the community should not be left to the whim of individuals, and that the action of the local board of health should be sustained.

Council on Pharmacy and Chemistry.—During January the following articles have been accepted for inclusion with New and Nonofficial Remedies: Barium sulphate, Merck, for Roentgen-ray diagnosis, theobromine, Merck & Company; barium sulphate, P. W. R., for Roentgen-ray diagnosis, Powers-Weightman-Rosengarten Company; tabellae dulces aristochin (Western) 1 grain, tabellae dulces heroin (Western) 1/100 grain, tabellae dulces novaspirin (Western) 1/4 grain, tabellae dulces tannalbin (Western) 1 grain, tabellae dulces terpin hydrate with heroin (Western) 1/100 grain, Western Chemical Company.

The American Society for the Control of Cancer in a circular letter to state medical societies commends the work done by our Pennsylvania Commission on Cancer and suggests that the organized medical profession, through the agency of the state and county societies and special cancer committees, should also seek to promote the special instruction of nurses, social workers, and others coming in direct contact with patients, especially women, the object being that in no case should the nurse attempt to make a diagnosis but that in all cases of suspicious symptoms she should be prepared to advise immediate professional consultation and follow up the matter with force and discretion until such result is obtained.

The Association of Military Surgeons of the United States announces the results in the Henry S. Wellcome Prize competition. Capt. Mahlon Ashford, M. C., U. S. Army., who wrote on the subject, "The Most Practicable Plan for the Organization, Training and Utilization of the Medical Officers of the Medical Reserve Corps of the United States Army and Navy, and of the Medical Officers of the Officers' Reserve Corps of the United States Army, in Peace and War," was awarded a gold medal and three hundred dollars. First Lieut. Henry C. Coe., M. R. C., of New York City, who received the honorable mention for this prize, was awarded a life membership in the association. A silver medal and two hundred dollars was awarded to Assistant Surgeon General W. C. Rucker, U. S. P. H. S., whose essay was entitled "The Influence of the European War on the Transmission of the Infections of Disease, with Special Reference to Its Effect on Disease Conditions of the United States." Passed Assistant Surgeon J. R. Hurley, U. S. P. H. S., received honorable mention for this prize and a life membership in the association. These prizes, which were given by Mr. Henry C. Wellcome, an American living in London, are annually competed for by officers of the Army, Navy, Public Health Service, the National Guard and the Officers' Reserve Corps of both the Army and the Navy. The essays of the successful contestants will be published at an early date in *The Military Surgeon.*

A BAG OF FERTILIZER and A BOTTLE OF DOPE

One is for a plant.	The other, for a child.
One is required by law to print its ingredients on the package.	The other is not required to disclose its ingredients.
One can be used intelligently, in accordance with scientific knowledge regarding the effects of the substances on plants.	The other cannot be used intelligently, in accordance with scientific knowledge regarding the effects of the substances on human beings.
One thrives upon openness and public intelligence.	The other thrives upon secrecy and public ignorance.
One defrauds with difficulty.	The other defrauds with ease.
For the one, the Government, knowing its composition, can furnish the consumer exact information as to its effects.	For the other, the Government, not knowing its composition, cannot furnish the consumer any statement regarding its effects.

Is It Just and Right That the Farmer May Know What He Gives His Plants, and Unjust and Wrong to Allow the Parent to Know What He Gives His Child?

North Carolina in its January *Health Bulletin* presents the interesting parallel, given above, between the requirements in that state for selling fertilizers and "patent medicines," respectively.

California's Drugless Healers Law Sustained.—The Supreme Court at Washington, D. C., January 8, affirmed the refusal of California Federal courts to enjoin enforcement of California's medical practice law requiring licensing of "drugless" practitioners. The law exempts Christian Scientists. The ruling leaves it in full force and operation. The court also dismissed an appeal attacking validity of California's law regulating practice of optometry and requiring licensing of "drugless" ophthalmologists, but exempting regularly licensed physicians and surgeons. California's so-called "drugless healer" laws, enacted in 1913, were attacked as unconstitutional in two injunction suits of P. L. Crane, a Los Angeles chiropractor, and Mrs. Kate P. McNaughton, a Los Angeles ophthalmologist. No Christian Scientists were parties to the suits, but have been watching them because of the statutes' exemption of Christian Science and other "prayer practitioners" from examination and licensing by the State Medical Board. The laws, designed to suppress "quack" and "fake" healers, require osteopaths, neuropaths, chiropractors and other so-called drugless healers to have certain physiological knowledge. Exemption given Christian Science was attacked as unconstitutional in the injunction suits. It was contended that the law gives Christian Scientists a monopoly in "prayer practice," discriminates against drugless practitioners of every school of drugless healing in favor of those using prayer only, is class legislation and an arbitrary exercise of the state's "police powers." The California laws, the defending authorities asserted, permit all persons, whether drugless practitioners, physicians or Christian Scientists, to treat the sick with prayer.

BULLETIN EXCERPTS

Medical Bulletin, Blair

Free Medical Attention.—Today's papers contain the information that the Schwarzenbach-Huber Co. of the Altoona and Juniata Silk Mills have worked out a system of free medical attention to such of their employees as may wish it, and that Dr. Meminger and myself have been appointed as their physicians. It is a little surprising that, knowing the high regard we both have for medical ethics, the question should be raised if we might not be violating the same. This is not contract work on a definite salary per month, nor is it like lodge practice, at so much per head. At the end of each month we render to the company a statement for services during that month, at the regular fees as contained in the Fee Bill of the Blair County Medical Society.

Altoona, Jan. 12, 1917. Fred H. Bloomhardt.

Weekly Bulletin, Allegheny

Correspondence.—I desire to take exception to a statement in the letter signed George R. Harris, Jr., in *The Bulletin* of January 13, reading: "The membership and attendance are poor for one reason only; there is nothing to attract the members to meetings." The county society meetings have been certainly shorn of business meetings to a great extent and the scientific program made almost the entire schedule. In refutation of the allegation that there is nothing to attract members to meetings, it is only necessary to recall the splendid papers read by Drs. Baker and Rosenbloom at the November meeting; the untirable and magnificent exhibit of cases by Dr. Buchanan, the clever paper of Dr. Palmer and its able discussion by Dr. D'zmura, the interesting paper of Dr. McGuire, and the widely interesting general discussion evoked by it, participated in by the old-timers even, at the December meeting; and the very complete paper of Dr. Sherman at the January annual meeting — all efforts that any medical society should be proud of. The section of "alleged" politicians (medical) in charge of the program committee has certainly done its duty well, and it certainly has done much to attract members to meetings, as the quality of the above-cited papers verify. It is too bad that so many good papers are rendered without after-eulogies befitting their merits appearing in *The Bulletin,* if only to remind the habitual absentee that he has missed something very much worth while. Once on a time I used to feel somewhat hostile to medical politicians, but experience of some years in the county society has convinced me that whatever the demerits of these Caesars and Napoleons may be, there would be no society without them. I have never known of anything being pushed to completion, that was not undertaken and propelled by these politicians, rather "alleged" politicians, the "clique," at any time since I have been in the county society. For "everybody's business is nobody's business," and everybody does nothing usually. H. P. Ashe.

BUREAU OF MEDICAL EDUCATION AND LICENSURE

MEMBERS BY APPOINTMENT

John M. Baldy, Pres., 2219 DeLancey St., Philadelphia.
Daniel P. Maddux, Chester.
Irvin D. Metzger, Pittsburgh.
Calvin L. Johnstonbaugh, Bethlehem.
Adolph Koenig, Pittsburgh.

Members Ex-Officio.

Nathan C. Schaeffer, Sec., Dept. of Pub. Inst., Harrisburg.
Samuel G. Dixon, Harrisburg.

LIST OF QUESTIONS SUBMITTED BY THE BUREAU OF MEDICAL EDUCATION AND LICENSURE AT THE JANUARY, 1917, EXAMINATIONS

MEDICAL AND SURGICAL

PHYSIOLOGY, PATHOLOGY AND BACTERIOLOGY

1. State the types of laboratory work which you have been trained to do in the hospital; enumerate several specific investigations which you have made under each type.

2. What alteration in function indicates some lesion (*a*) of the third nerve? (*b*) of the semicircular canals? (*c*) of the pituitary body? (*d*) of the thyroid gland?

3. Outline the laboratory investigations which may determine the etiology of (*a*) hemoptysis and (*b*) hematemesis.

4. Explain briefly the principles involved in (*a*) autogenous vaccine treatment; (*b*) in the Wassermann reaction; (*c*) in the Widal test.

5. Describe briefly (*a*) the pathologic process in the death of bone; (*b*) the process of repair in a fractured bone.

6. State the pathological significance of leukocytosis, pyemia, aneurysm, uremia, acetonuria. (Answer in a sentence or two for each.)

7. Differentiate acute diffuse and chronic interstitial nephritis by urinalysis; by macroscopical and microscopical changes in the kidney.

8. Outline the injurious effects (*a*) physiologically and (*b*) pathologically which may arise from hypertrophied lymphoid tissue in the nose and throat.

9. Give an outline of the laboratory investigations by which you might ascertain the cause of (*a*) recurrent rigors, (*b*) of persistent fever, (*c*) of dysentery, and (*d*) of sore throat. (Omit technic.)

10. Given a case of synovitis of the knee, outline the laboratory technic which may determine each of the possible causes.

SYMPTOMATOLOGY, DIAGNOSIS, TOXICOLOGY AND MEDICAL JURISPRUDENCE

1. Enumerate the symptoms of erysipelas; differentiate it from (*a*) acute eczema, (*b*) erythema.

2. Discuss at length anterior poliomyelitis; name other conditions for which it may be mistaken and state why it may so be mistaken in each case.

3. State in detail the general symptoms of influenza: (*a*) the respiratory form, (*b*) the nervous form, (*c*) the gastro-intestinal form, (*d*) the typhoid or febrile form.

4. Describe in detail the physical examination and symptoms of an enlarged right kidney, (*a*) a movable (right) kidney and differentiate them from a distended gallbladder.

5. Discuss the differentiation of the various manifestations of pneumonia from pleurisy.

6. Enumerate the symptoms of typhoid fever and name two other conditions which may be mistaken for it; differentiate them clinically. (Omit description of laboratory technic in all cases.)

7. Differentiate phlyctenular (eczematous) keratitis from iritis and from acute glaucoma.

8. Discuss the differentiation of (*a*) aortic stenosis; (*b*) mitral insufficiency; (*c*) aortic aneurysm.

9. Enumerate the general symptoms of the poisonous effects of the alkaline salts, and contrast them with the acids.

10. Differentiate the symptoms in a given case of manic-depression from (*a*) hysteria; (*b*) nervous exhaustion.

OBSTETRICS AND GYNECOLOGY, PHYSIOLOGICAL CHEMISTRY

1. What complications may occur in the breasts before and after confinement? Discuss their management.

2. Discuss the early diagnosis of cancer of the (*a*) female breast; (*b*) cervix uteri; (*c*) fundus uteri. (No credit will be given for a discussion of advanced symptoms.)

3. If a woman consults you as to her future confinement and places herself under your care up to the time she falls into labor, detail the steps you should take in order to secure her safety (state any tests that should be made).

4. If a woman presents herself on whom presumably a criminal abortion has been committed in the early months of pregnancy, how will you tell whether or not the uterus is empty? Discuss the significance and remote possibilities of the two prominent, probable symptoms.

5. Discuss the common methods of introduction of pathogenic organisms into the birth canal and the results of their presence there.

6. State the methods which may be used in delayed or complicated labor. Discuss the complication in which you would use each, and in every case state why you would exclude other measures.

7. How would you detect (*a*) an oncoming attack of eclampsia, (*b*) a premature detachment of a normally attached placenta, (*c*) a deformed pelvis. Discuss the management in each of these conditions.

8. Outline the principles of a common method (Kjeldahl) for the quantitative determination of nitrogen in urine.

9. (*a*) In what form does ammonia occur in normal urine? (*b*) How does acid production in the body influence the urinary ammonia output? (*c*) Illustrate by a well-known clinical example.

10. Discuss the digestion and storage of carbohydrates in the body.

ANATOMY AND SURGERY

1. State the conditions for which intravenous infusion of normal saline may be employed. Name and locate the blood vessels most readily accessible for this purpose.

2. In severe contusions of the extremities, state what complications may arise. Outline the original treatment of the contusion. Outline the treatment of any one complication.

3. Given a case of recent severe traumatism about the shoulder joint, resulting from a fall, detail the type of examinations you would employ. What lesions should be suspected? Outline the treatment of any one.

4. In a case having a distended, tympanitic, painful, tender abdomen, state the tests that you would employ to determine the precise condition present. What conditions should be suspected? Outline the surgical treatment of any one condition. (Omit details.)

5. What symptoms and conditions may be present that in your mind would demand the removal of the entire mammary gland? State how you would do it.

6. What conditions would warrant a circumcision? State how you would do the operation.

7. What symptoms and conditions may result from a fracture of the pelvis? Describe a surgical operation that might be required for any one of these conditions.

8. State in detail the surgical anatomy as related to umbilical hernia. State, in order, the parts incised and the parts sutured.

9. How would you recognize a carbuncle? How would you treat it?

10. State the mechanical defects that might be the cause of impaired breathing. Outline a surgical operation for the correction of any one cause.

PRACTICE, MATERIA MEDICA, THERAPEUTICS AND HYGIENE

1. Name two drugs or official preparations that might be administered in each of the following diseases: (*a*) measles, (*b*) scarlet fever, (*c*) tonsillitis, (*d*) asthma, (*e*) cystitis. Give dosage and state your reasons in each case for the use of the remedy.

2. Outline the therapeutic and dietetic management of a case of gastro-enteritis in a child aged two years.

3. Describe the medical treatment of exophthalmic goiter. What conditions or symptoms would you consider as warranting surgical intervention?

4. Name the three principal types of food required by man for the maintenance of health. In what proportion should they enter into the human dietary? What other alimentary substances are needful for the maintenance of health?

5. Describe the measures you would employ in an attempt at resuscitation in (*a*) a case of drowning; in (*b*) electrical shock, and in (*c*) gas poisoning. What medication would you employ as an aid to your measures?

6. Name three remedies that might be indicated in a case of circulatory failure in an acute infectious disease. Give details of administration: (*a*) frequency; (*b*) dosage; (*c*) prescription or otherwise (if prescription, give example); (*d*) hypodermatically or by the mouth (reasons for preference).

7. Describe the main features in the treatment of (*a*) acute laryngitis; (*b*) tinea circinata; (*c*) parotiditis; (*d*) glaucoma; (*e*) ameboid dysentery.

8. What remedies or measures would you employ in aid of deficient elimination of toxic material of either endogenous or exogenous origin, in autointoxication?

9. Name a remedy, with dose, which you would employ in (*a*) hyperacidity of urine; (*b*) in hyperalkalinity of urine; (*c*) as a urinary antiseptic; (*d*) as a digestive aid in atonic dyspepsia; (*e*) as an analgesic in acute biliary colic.

10. Give the main hygienic, dietetic and medicinal indications in the treatment of pulmonary tuberculosis.

MASSAGE AND ITS BRANCHES

ANATOMY AND PHYSIOLOGY

1. Describe the skin. State what conditions tend to greater activity of skin function.

2. State some of the elements found in normal human blood.

3. Name the general divisions of the nervous system.

4. What nerve is involved in cases of facial neuralgia?

5. State the elements that should be excreted in normal urine.

6. What changes occur in the body in cases of extreme fatigue?

7. Name the different varieties of joints. Describe in detail any one of the larger joints.

8. Outline the general arrangement of the muscles of the leg.

9. Define peristalsis; what causes it? Describe the muscular distribution in the intestines.

10. What do you understand by metabolism?

PRACTICE, HYGIENE AND PATHOLOGY

1. Outline the general forms of treatment you are prepared to administer.

2. Enumerate ten conditions of the body to which massage treatment is applicable.

3. What is obesity? How would you treat it? What instructions would you give your patient?

4. Outline the treatment suitable for the relief of constipation, stating the purposes of each manipulation.

5. Give causes and symptoms of general nervousness. What treatment would you adopt for the same?

6. What is the effect of massage on (*a*) the skin, (*b*) the muscles, (*c*) the circulation?

7. What are the main causes of a swollen joint? How would you treat the case in each?

8. Describe two types of reeducative exercises used in the treatment of tabes dorsalis.

9. Give hygienic precautions against eczema, "colds," lung disorders, insomnia, blackheads.

10. What dangers are produced by an abrasion of the skin? Under what circumstances may this occur in the course of your manipulations?

COMMUNICATION

OBJECTS TO QUESTIONS FOR NURSES

Philadelphia, Jan. 11, 1917.

To the Editor: I wish to draw the attention of the members of the state medical society to the questions asked by the Examining Board for Nurses from October 11 to Oct. 23, 1916. As many of us assist in the teaching of nurses, I think it only just that we have a word in regard to the questions asked. As I shall show later, there are a number of questions which are irrelevant to the subject and some of the questions should be asked only students or doctors, unless we expect trained nurses to perform the duties of doctors. Again, these questions are frequently put in such form that no one would be able to give a satisfactory answer. I am writing to the Journal in the hopes that the questions will be more specific than they have been in the past.

All of us realize that it is practically impossible to formulate questions which could not be subject to criticism; however, the point which I wish to make clear is this: In teaching nurses the various subjects required it is difficult to cover all the practical sides of the subject without going into such discussions as the questions which follow would require.

The following are a few of the questions which I object to. There are, however, many others.

Oct. 11, 1916

Question No. 7. What are the functions of the tongue? What is the value of this organ when disease is suspected?

I think you will agree with me that the last half of that question is very poorly put.

Question No. 9. Where is the frontal sinus? To what may infection of this organ lead? What organs may be involved?

A rather comprehensive question for a nurse.

Question No. 14. Name four malpositions of the uterus and describe two of them.

Question No. 16. What unusual demands on the nurse does a case of acute anterior poliomyelitis make?

Question No. 20. Give an entire day's menu for a diabetic patient.

This question requires the nurse to know the carbohydrate tolerance of the patient, the amount of sugar if any present, and the presence or absence of diacetic acid or acetone. It would seem to me that this would be a very difficult medical question.

Question No. 25. Give three rules bearing on (a) to the individual nurse; (b) to the relation of the nurse to her patient; to her relation to her school.

I do not see where this question has any bearing on nursing or to the allied science of medicine.

Oct. 18, 1916

Question No. 10. Describe the organs of circulation. Which are mechanical in their function? Which is marvelous? Why?

The least that can be said of this question is that it is very poorly put.

Question No. 12. What and where are the sphenoid cells? How may infection reach them?

This question represents the type of question which one sees throughout all the papers. It is entirely a medical one and a very difficult one at that.

Question No. 25. To what extent should a nurse continue her studies after graduation?

Question No. 9. Describe the temporal bone, the bony portion of the arm, the shin bone.

Question No. 14. What makes breast feeding difficult.

Question No. 25. What should the nurse do in order to secure sufficient rest and sleep when on a private case?

Oct. 26, 1916

Question No. 20. Give five general rules to be observed in nursing nervous cases.

Question No. 21. What are the exciting causes of diarrheas in children? What are the predisposing ones?

A rather broad question for a nurse.

Question No. 25. From your own observation and experience, what reason have patients had to complain of nurses?

An absolutely absurd question in a technical examination.

Oct. 28, 1916

Question No. 4. Give in detail the mechanism of labor.

Nov. 2, 1916

Question No. 13. What may cause amenorrhea? What advice would you give an adolescent concerning it?

Question No. 14. What is meant by procidentia? What operations are done for its relief and what nursing care is needed?

Question No. 15. What is meant by "tact"? How may it be cultivated?

This, to my mind, is the most absurd question of them all. There are many that very nearly equal it.

I might go on relating many more questions of about the same variety, but the above will answer my purpose very well. The point that I wish to bring out is that the questions should be more carefully selected so that the teacher will know about what is expected of the nurse.

Very truly,
G. M. Dorrance, M.D.

BOOKS RECEIVED

Books received are acknowledged in this column, and such acknowledgement must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

Abraham Lincoln. An address delivered before the Lincoln Memorial Meeting of the Muldraugh District Medical Association, held at the Lincoln Farm, near Hodgensville, LaRue Co., Ky., Sept. 7, 1916. By Curran Pope, M.D., Louisville, Ky.

An Inquiry Into the Principles of Treatment of Broken Limbs. A Philosophico-Surgical Essay, with Surgical Notes. By William F. Fluhrer, M.D., Consulting Surgeon to Bellevue and Mount Sinai Hospitals. Illustrated. New York: Rebman Company, 141 West Thirty-Sixth Street. Price, $3.00.

The Diagnosis and Treatment of Abnormalities of Myocardial Function, with Especial Reference to the Use of Graphic Methods. By T. Stuart Hart, A.M., M.D., Assistant Professor of Clinical Medicine in the College of Physicians and Surgeons, Columbia University; Visiting Physician to the Presbyterian Hospital in the City of New York. Illustrated with 248 Engravings, 240 of which are original. New York: The Rebman Company, 1917. Price, $4.50.

A New Method in Diabetes. The Practical Treatment of Diabetes as Conducted at the Battle Creek Sanitarium, Adapted to Home Use, Based on the Treatment of More Than Eleven Hundred Cases. By J. H. Kellogg, M.D., LL.D., Chief Medical Director of the Battle Creek Sanitarium, Author of "Neurasthenia—Its Causes and Cure," "Colon Hygiene," "Rational Hydrotherapy," "The Art of Massage," "Light Therapeutics," "The Hygiene of Infancy," etc. Battle Creek, Mich.: Good Health Publishing Company, 1917. Price, $2.50 net.

BOOK REVIEWS

THE CLINICS OF JOHN B. MURPHY, M.D., at Mercy Hospital, Chicago. Volume V, Number 6 (December, 1916). Octavo of 217 pages, 47 illustrations. Philadelphia and London: W. B. Saunders Company, 1916. Published Bi-Monthly. Price per year, Paper, $8.00; Cloth, $12.00.

A short time ago in reviewing the first number of these clinics to appear since Dr. Murphy's death we briefly and very inadequately expressed our feeling in the loss of this great American. The present number finishes Dr. Murphy's material to be devoted to this purpose and is unfortunately the end of this most interesting and valuable series.

The present volume contains very beautiful memorial addresses by Dr. E. Wyllys Andrews, Dr. J. F.

Binnie, Dr. George W. Crile, Dr. John B. Deaver, Sir Rickman J. Godlee, Sir W. Arbuthnot Lane, Dr. Ernest Laplace, Dr. Edward Martin, and brief notes on Dr. Murphy's last illness and death. It also contains a reproduction of a very good photograph of Dr. Murphy which will, no doubt, be especially prized by all who knew him or had the opportunity of hearing his addresses or visiting his clinic. In addition a large number of Murphy's unequaled clinic talks are produced in the usual careful and thorough way.

The present number is a very fitting ending to this helpful series of publications which is thus brought to such an untimely close. J. M. W.

A MANUAL OF NERVOUS DISEASES. By Irving J. Spear, M.D., Professor of Neurology at the University of Maryland, Baltimore. With 172 Illustrations. 8vo, pp. 660. Philadelphia and London, W. B. Saunders Company, 1916. Cloth, $2.75 net.

Dr. Spear has well performed the task he set out for himself in his endeavor to provide for the student and practitioner in a book of moderate size the facts necessary for a proper understanding of the anatomy, physiology and diseases of the nervous system. The first part of the book deals with the practical anatomy and physiology of the nervous system and with correct methods of examining nervous patients. In the second part are taken up the diseases of the nervous system in the following sequence: diseases of the peripheral nerves, of the muscular system, of the spinal cord, of the brain, of the brain and spinal cord, diseases of the nervous system without pathologic findings, neuroses characterized by spasmodic muscular contractions, diseases due to perversions of secretion of ductless glands, diseases due to disturbances of the vasomotor system, trophoneuroses and unclassified disorders. While no attempt has been made to cover the entire field of neurology, the most important aspects of the subject have been presented clearly if briefly, and the work should prove useful in the hands of those for whom it is intended. E.

A TREATISE ON DISEASES OF THE SKIN, for Advanced Students and Practitioners. By Henry W. Stelwagon, M.D., Ph.D., Professor of Dermatology in Jefferson Medical College, etc. Eighth Edition, Revised. With 356 Illustrations in the Text and 33 Colored Half-Tone Plates. 8vo, pp. 1309. Philadelphia and London: W. B. Saunders Company, 1916. Cloth, $6.50 net; half morocco, $8.00 net.

It is a pleasure to extend welcome to a new edition of Dr. Stelwagon's excellent, comprehensive and well-known work on diseases of the skin. The book is appropriately dedicated to that foremost dermatologist, the late Dr. Louis A. Duhring, who did so much for the prestige of this department of medicine in America, and of which he was such an honored and distinguished a representative. Thorough and complete as have been the earlier editions of this work the present has been improved in various directions. New articles have been added dealing with occupational dermatoses, paraffinoma, purpura annularis telangiectodes, xanthoma elasticum and ulerythema ophoryogenes, while a number of other articles have been more or less radically modified. To the considerable number of admirable illustrations in previous editions not less than thirty-five new ones have been added. Dr. Stelwagon speaks from a full and ripe experience and a wide familiarity with the literature of his subject, and he has succeeded in keeping his work as one of the best if not the best on diseases of the skin in this country. E.

A TEXTBOOK ON THE PRACTICE OF GYNECOLOGY, for Practitioners and Students. By William Easterly Ashton, M.D., LL.D., Professor of Gynecology in the Graduate School of the University of Pennsylvania. etc. With 1052 New Line Drawings Illustrating the Text, by John V. Alteneder. Sixth Edition, Thoroughly Revised. 8vo, pp. 1097. Philadelphia and London: W. B. Saunders Company, 1916. Cloth, $6.50 net; morocco, $8.00 net.

The distinguishing feature of Ashton's Gynecology is its individuality. Each subject considered is presented in great detail, leaving no gaps to cause doubt or confusion in the mind of the reader, and so far as possible the discussion is based on Dr. Ashton's own extensive experience. Both the medical and the surgical aspects of the diseases of women have been taken into account. In the line of treatment that plan is first and fully described that seems best in Dr. Ashton's judgment, while more or less extended reference is made subsequently to variations indicated by special indications in individual cases. Careful revision has been given to the present edition and additions have been made in order to bring it in line with the advances and newer knowledge that have developed with the lapse of time. Dr. Ashton's book has been before the profession for nearly a dozen years, and it has fulfilled a need, and found a useful place in the hands of students and practitioners. A noteworthy feature of the work is the large number of admirable line drawings made especially for the purpose. E.

CARE OF PATIENTS UNDERGOING GYNECOLOGIC AND ABDOMINAL PROCEDURES, BEFORE, DURING AND AFTER OPERATION. By E. E. Montgomery, A.M., M.D., LL.D., F.A.C.S., Professor of Gynecology in Jefferson Medical College, Gynecologist to Jefferson and St. Joseph's Hospitals, etc. Illustrated. 8vo, pp. 149. Philadelphia and London: W. B. Saunders Company, 1916. Cloth, $1.25 net.

The success of a surgical operation depends on more things than the skill of the surgeon, and among these not the least are the preparation of the patient and the field of operation and the after-care and treatment. Accordingly Dr. Montgomery has rendered a useful service in providing this guide for intern, nurse and novice, and coming from so experienced a source it carries with it a definite weight of authority. The first or general division of the work deals with the treatment of the patient on admission to the hospital, the preparation of the field of operation, the incision, closure of the wound, dressings, clinic work, care of the patient during operation, after-care, catheterization, nourishment, shock, nausea and vomiting, hemorrhage, external and internal, tympanites, abdominal pain and tenderness, peritonitis, sepsis, phlebitis, ileus and fecal fistula. The second part comprises brief descriptions of the following abdominal and pelvic operations: shortening ligaments, salpingectomy, salpingo-oöphorectomy, ovariotomy, hysterectomy, panhysterectomy, subtotal hysterectomy, intestinal resection and anastomosis, gastric operations, gastropexy, gastrotomy, gastroenterostomy, on the gallbladder, the spleen, and the kidney. The third section deals with the following vaginal operations: dilatation and curettement, trachelorrhaphy, amputation of the cervix, anterior colporrhaphy, vesico-vaginal interposition of the uterus, Watkins' operation, vaginal hysterectomy, perineorrhaphy, posterior colporrhaphy, recto-vaginal interposition of the levator ani muscles. E.

SOCIETIES

PHILADELPHIA LARYNGOLOGICAL SOCIETY

Meeting of Jan. 2, 1917

Epithelioma of the Ethmoid. Dr. George M. Coates presented a patient, female, aged 35, who first came under observation Nov. 13, 1916, with a swelling on the right side of the nose, first noticed two years previously, having gradually increased in size since that time. There has been progressive loss of body weight and loss of the senses of taste and smell. Both nasal passages were occluded. Marked deafness with annoying tinnitus had been present during the past week and a nonproductive cough during the past two weeks. There had been no night sweats. She had had epistaxis from the right nostril every few days for the last year, bleeding profusely sometimes. On transillumination, all of the sinuses were clear excepting the ethmoids. Examination showed the septum pushed to the left and the entire right nostril occluded by a soft, friable mass, apparently originating in the ethmoid region.

On November 15, this mass was removed with the snare and punch-forceps. Bleeding was free but was controlled. The mass removed was the size of a pigeon's egg and consisted of a friable vascular mass, in parts quite firm. Histologic diagnosis: basal cell epithelioma of the ethmoid.

Spindle Cell Sarcoma of the Ethmoid Involving the Supra-Orbital Soft Tissues and the Antrum. Dr. Ross H. Skillern presented a patient, Miss M., aged 39. She first noticed a painful swelling in the region of the left lacrimal duct in August, 1916. On external pressure a thin liquid exuded from the left nostril. The supra-orbital region was soon involved. The left side of the nose gradually became occluded. She had severe supra-orbital headaches.

Examination of the nose, Dec. 1, 1916, showed the left side of the nose to be occluded with polyps, apparently originating in the ethmoid region. The supra-orbital region was protruding. Roentgen-ray examination showed a mass in the ethmoid region with destruction of cell walls. Clinical diagnosis: hypertrophic fronto-ethmoidal sinusitis.

The polyps were first removed intranasally and the ethmoidal cells destroyed. Portions were sent to the pathologic laboratory. One week later an external opening was made. The entire ethmoidal labyrinth was found to be degenerated into a large tumor mass, infiltrating upward into the supra-orbital soft tissues and downward into and filling the antrum. The incision was closed. Histologic diagnosis: spindle cell sarcoma.

Giant Cell Sarcoma of Maxillary Sinus. Dr. Robert F. Ridpath presented a patient, male, aged 53, of medium stature, considerably emaciated. History of a blow on the cheek, by a heavy board, two years ago. There was considerable subsequent swelling but no skin abrasion. After two months a lump formed, under the skin, which was treated by Roentgen ray at weekly intervals for seven months, without relief, but with a consequent breaking down of the skin and the formation of a fistulous opening into the antrum. A radical Denker operation was indicated and performed, Sept. 29, 1916. The tissue did not heal after operation but continued to slough and necrose. The fistulous opening has enlarged and will admit a thumb. Histologic diagnosis: giant cell sarcoma of maxillary sinus.

Carcinoma of Lingual Tonsil and Epiglottis. Dr. James A. Babbitt presented a patient, O. H. F., male, aged 59, who came under observation, Dec. 5, 1916. He complained of sore throat, dysphagia, pain in the larynx radiating to the ears, frequent hoarseness, at times aphonia and the presence of a lump on the left side of the neck.

The lump, when first noticed, October, 1916, was small and soft but in one month it had become larger and harder. A small lump was also noticed on the right side of the neck. There had been no loss of weight nor other significant symptom. A secondary anemia, however, was present. Tuberculosis and syphilis were excluded. Alcohol had been used to excess up to five years ago; smoking tobacco to excess until four months ago.

Examination of the left side of the neck showed a flat, diffuse, indurated area, the size of a half dollar, just over the middle of the sterno-cleido-mastoid muscle and a hardness of the submaxillary gland, but no nodules. The right submaxillary region showed some induration. Examination of the throat showed a nodular, non-ulcerated mass, involving the lingual tonsil and epiglottis and extending downward into the larynx, occluding a view of the cords. The clinical diagnosis and the consensus of opinion at the meeting was that the condition is one of carcinoma.

Mycosis Fungoides Involving the Tonsils, Soft Palate and Uvula. Dr. Matthew S. Ersner presented a patient, H. P., male, aged 34, colored. Five years ago the right tonsil became swollen and after several weeks exuded a mucosero pus. In the course of the subsequent six months, the uvula, left tonsil, right and left tonsillar pillars were involved. In the last five months, deep ulcerations and excoriations developed on the floor of the mouth, spreading to the outer edge of the tongue.

The soft palate was edematous, of pale glassy appearance. The other mentioned structures were all more or less matted together in a granulomatous mass, with polypoid structures hanging down into the pharynx. From time to time, a polypoid mass had sloughed off. On six occasions in the last four years, hemorrhages lasting from one-half to twenty-four hours followed. The clinical picture resembled that of syphilis.

Blood serum, bacteriologic and biologic studies were made but failed to establish a diagnosis of syphilis or tuberculosis. There had been no glandular enlargement and no loss of body weight. Finally a section was removed for histologic study. In the sections certain areas resembled tuberculosis, others small round-cell sarcoma. Diagnosis after study by Drs. Kolmer, Smith and MacFarland of the University of Pennsylvania: granulomata mycoses fungoides.

Sidney L. Olsho, Reporter.

A testimonial dinner was tendered to Dr. Chevalier Jackson, on Jan. 23, 1917, at the Hotel Rittenhouse, under the auspices of the Philadelphia Laryngological Society, in honor of his appointment to the chair of laryngology in the Jefferson Medical College.

The address of welcome was made by Dr. J. Solis-Cohen, introduced as the "pioneer in the whole realm of laryngology" by the toastmaster, Dr. Hobart A. Hare. Dr. Cohen referred to Dr. Jackson as the "King of the Bronchoscope, Master Gastroscopist."

Other addresses were made by Dr. Judson Daland for the Medico-Chirurgical College, Dr. Edward Martin for the University of Pennsylvania, Dr. J. Chalmers DaCosta for the Jefferson Medical College, Dr. Emil Mayer of New York City, Dr. W. W. Keen of Philadelphia.

Tributes were paid to the late Dr. D. Braden Kyle by Dr. Daland and by Dr. DaCosta.

About 150 guests were present.

Sidney L. Olsho, Reporter.

WILLS HOSPITAL OPHTHALMIC SOCIETY

Meeting of Dec. 4, 1916,

Dr. Samuel D. Risley, Chairman

Dr. Paul H. Kleinhans presented a boy 11 years of age, with synchronous movements of eye and jaw. The mother had noticed from birth that the upper lid of the right eye drooped and some years later it was remarked that movements of the mouth in chewing were always connected with an up and down movement of the right eyelid. There was no family history of a similar anomaly.

Examination showed, in the primary position, almost complete ptosis of the right lid. On opening the mouth the lid shot up. Lateral movements of the jaw had no effect on the lid. Examination showed insufficiency of the right superior and internal rectus muscles. There were no fundus changes, and vision in each eye was normal.

Dr. W. C. Posey said that cases of this nature were quite rare, and recalled a case of a Hebrew girl, 17 years old, whom he had reported to the College of Physicians some years previously. The right lid had drooped from birth and since earliest childhood it had been remarked that when she chewed or rotated her jaw, the lid would move up and down. There was an associated overaction of the right superior rectus muscle, due to insufficiency in the right inferior rectus.

Dr. Posey said that Sinclair, who had written an able treatise on the subject in 1895, had found the most common class of cases of this kind to be those in which certain movements of the lower jaw are associated with an upward movement of the upper eyelid. In this class, there is one-sided congenital ptosis, with or without paresis of the superior rectus. The drooping eyelid cannot be voluntarily raised, but is vigorously raised when certain movements of the lower jaw occur. Sinclair further subdivided the cases in this series into four subheads: (1) Cases of one-sided congenital ptosis in which the drooping eyelid is raised both when the mouth is opened (digastric) and also when the jaw is directed to the opposite side (external pterygoid); (2) cases of one-sided congenital ptosis in which the drooping eyelid is raised when the jaw is depressed, but is not raised with lateral movements of the jaw; (3) cases of one-sided congenital ptosis in which the drooping eyelid is raised with lateral movement of the jaw (external pterygoid action), but not with simple opening of the mouth; (4) cases in which similar associated movements of one upper eyelid with movements of the lower jaw occur, but in which there is no ptosis.

The explanation of the association is difficult and must be purely hypothetical, as no cases as yet have come to necropsy. The theory which is usually accepted is that the levator receives nerve supply from the motor nuclei of the fifth nerve as well as from the nuclei of the third. Others have thought of a nuclear connection between the third and seventh nerves, and there are still others who presuppose a connection between the nuclei of all three nerves. While there is ground for belief in the imperfect development of the third nerve nuclei in a number of the cases, as is evidenced by insufficiency in the action of superior and inferior rectus and other muscles supplied by that nerve, this is not true of all, for, as has been stated above, other cases have been cited where all the muscles supplied by this nerve performed their functions normally, the associated movements between the lid and jaw being the only anomalous conditions present.

Dr. William Zentmayer noted that when the gaze was directed below the horizontal plane the left palpebral fissure became of the same width as that of the right side and continued so in complete infraduction. Associated movements between the eyes and other facial muscles, especially between the orbicularis and the alae of the nose are said by Harmon to be very common. Dr. Harlan, some years ago, showed a case allied to the one now exhibited in which blepharospasm was induced by jaw movements.

Dr. Burton Chance said that the number of cases exhibiting jaw winking are so few that every opportunity should be taken to place on record any instances of the syndrome whenever they occur. He had had a case in his private practice a number of years ago, which showed drooping of the lid during mastication. The patient was a comely lady of 19, in whom the defect could not be observed except when she was eating.

Monocular Trachoma. Dr. Zentmayer exhibited a case which was in the early cicatricial stage, and on which he had performed the Kuhnt-Heishrath operation. The result has been very satisfactory; a dense pannus which had previously been present having almost entirely disappeared. He had now performed this operation in cases representing all the stages of trachoma except that of advanced cicatrization, and in every instance the result had been gratifying.

Tuberculosis of the Anterior Segment of the Globe. Dr. Zentmayer exhibited a patient, a married woman, 32 years of age, who had been pregnant three times. First time had abortion performed because of exhaustion from vomiting; second, child born dead; third, miscarriage at three months. Wassermann and provocative Wassermann both negative. Wassermann on her husband also negative. Vaginal smears and cultures negative. Von Pirquet negative. Patient had an abscess of impacted molar which was removed. She had exophthalmic goiter. Gland was removed January, 1915. In the right eye there is a tongue-shaped area of haze in the cornea, superficially vascular. Pupil is irregular from almost complete posterior synechia. There is delicate fibrinous exudate on anterior capsule; mutton fat drops on Descemet's membrane. Anterior chamber is shallow; fundus negative. Much the same condition in left eye; anterior chamber deep. The patient had been under very energetic and appropriate treatment by Dr. Weinberger of Sayre, to whom Dr. Zentmayer was indebted for the previous history of the case, but the condition had not progressed favorably.

Congenital Cataract. Dr. Zentmayer reported a case in which, following a second discission of the lens, the nucleus dropped into the anterior chamber and was removed by passing a keratome into the anterior chamber behind the nucleus, making slight pressure on the cornea as the keratome was pressed back allowing the nucleus to escape along the blade of the instrument. Notwithstanding that the pupil appeared round there was a slight attachment of the iris to the corneal scar. Ordinarily Dr. Zentmayer preferred to treat congenital cataract in children by repeated discissions. He considered this method to be the safest one and he did not think that the element of time required for absorption of the lens should be considered a serious objection to this method when other procedures risked the loss of vitreous and prolapse of the iris. The method proposed by Dr. Posey required a preliminary discission, a linear extraction and doubtless often a final capsulotomy, as many operations as are ordinarily required by simple discission.

Dr. S. D. Risley said there were many things to consider in the management of so-called congenital cataract; that his experience showed in the majority of cases the opacity was not present at birth but had come on during the first few years of life. In very many instances, after the removal of the opaque lens and capsule, choroidal disease was revealed and was obviously the cause not only of the opaque lenses but of the failure to secure good vision even by the most successful operations. He had seen endarteritis, extensive choroidal atrophies, and disseminated absorption areas. The cataracts, therefore, were to be regarded as part of a vicious inheritance which was seen later in the abnormal development of the teeth and other evidences of impaired nutrition. Therefore a cautious prognosis should always be given. As to the methods of procedure for the removal of the opaque lens he has adopted as the operation of choice that described at the last meeting of the society; that is, a vertical incision in the capsule and anterior cortex, and twenty-four to forty-eight hours later the insertion of a keratome at the upper corneal limbus, the point of the instrument being carried into the substance of the lens making a section at right angles to the previous wound in the capsule. The instrument being then slowly and partially removed, the point pressed backward so as to prevent the prolapse of the iris but allowing a slight gaping of the corneal wound, thereby permitting the escape of the opaque flocculent cortex over the anterior surface of the keratome. It is true that in the group of cases shown at the previous meeting of the society two of them exhibited a slight anterior synechia at the upper angle of the anterior chamber, but whenever this occurs it is due to a fault in technic. After the extrusion of the cortex in the manner described, he had usually inserted a small flexible spatula and with gentle pressure stroked the iris, pressing out from behind it any cortex which might remain. This he had neglected to do in the two cases seen by Dr. Zentmayer and it was probably the slight pressure by this mass back of the iris which led to the adhesion of the latter to the wound. He would hesitate to return to the tedious method of frequent discission of the lens which he had employed for so many years, and with the defects and advantages of which he had long been familiar. The lessening of the days spent in the hospital, the better results obtained, and the freedom from the dangers of repeated needlings, made, in his opinion, the procedure he had described the one of choice.

Dr. Chance was much impressed by Dr. Risley's belief that the general health of the average subject of congenital cataract is not good, but frequently presents dyscrasias, vascular disease, or other depressing factors. And, in confirmation of this belief, Chance offered his observation of the difference between the recovery from the effects of traumatic cataract in young subjects, and the dissolution after operation on cataracts congenitally formed. He has been frequently surprised by the apparent ease with which disintegrated lenses in aseptic cases have been absorbed, whereas most carefully needled lenses may require months for absorption, being frequently accompanied by inflammatory symptoms.

Dr. Posey said that it was his custom to needle the lens quite thoroughly and to remove the swollen lens matter a few days later by curettement, making an incision for this purpose about 2 mm. from the limbus of the cornea in the horizontal plane, the lens matter being caused to extrude by inserting a cylinder Daviel spoon in the opening and keeping the instrument in a plane with the iris. Often the entire lens mass might be removed by this simple method. In other cases, a later discission of any remaining lens substance was necessitated.

He thought it best to defer operating, in cases of congenital cataract, until the age of 3 or 4 years, for the longer the surgeon waits the more the eye develops and the more apparent does the exact nature of the lenticular opacity become, and the dressing and bandaging of the eye is easier and there is less danger of infection.

Sometimes attempts at needling are frustrated by the tenacity and density of the lens capsule. Good results can be obtained in this class of cases by the displacement downward of the opaque tissue. We advised, however, an attempt at needling in the usual manner in even these cases, for the discission serves as an exploratory procedure, enabling the operator to judge of the constituency of the tissue with which he has to deal and at the same time exposes whatever lens matter may be present to the solvent action of the aqueous humor. Displacement should be resorted to only when needling fails and a tough resistant substance still blocks the pupillary area.

Dr. Frank Fisher said that for rapidity of recovery, safety and final good result the best method of dealing with congenital cataract is by free discission followed in forty-eight or seventy-two hours by complete curettement. With a Hayes' knife the lens can be thoroughly divided in different directions, broad rents being made in the anterior capsule and preferably in the posterior capsule also, exposing as much as possible of the lens matter to the aqueous. In forty-eight or seventy-two hours thereafter, depending on amount of cortical swelling and the tension created thereby, do the curettement.

Two or three millimeters from the upper limbus is the point of election. A broad needle, bent on the flat, yields best results, with which an incision from 4 to 5 mm. is made parallel to the limbus. A Daviel curet introduced with point well to the center of the pupil and well back of the level of the iris and with slight backward pressure against the upper lip of the wound will begin the evacuation of the chamber. Gentle pressure on the lower cornea with spoon or spatula, while the curet remains in the chamber, will complete the entire removal of the lens matter.

The presence of vitreous in the hyaloid fossa, or in the aqueous chamber during or after needling or even in the corneal wound during curettement is a negligible factor, so far as results are concerned, provided the wound is thoroughly cleared of shreds of hyaloid before closing.

If the cataract is of nuclear form originally it frequently happens that the harder nucleus is forced forward into the aqueous chamber by the swelling cortex after needling. This need not be regarded as a complication, the small mass being easily removed during curettement, and by the same process.

My experience favors early operation for congenital cataract yet it should not be done earlier than the second year. There is usually so little reaction after either the needling or the curetting that small attention may be given to bandages after the first twenty-four hours, merely slight protection being required.

Inquiry should always be made as to family history. Frequently more than one in a large family of children is afflicted with congenital lens trouble. In three generations of one family congenital cataract occurred as follows: first generation, three members, one case; second generation, five members, two cases; third generation, six members, two cases.

Dr. Chance presented a case of imperfection of the iris which he considered to be allied with polycoria, and not unlike, in certain respects, the case exhibited by Dr. Schwenk at the last meeting. In the case shown today, there was the remote history of inflammation of the left eye in an Italian girl of 11, in her early childhood, who had been sent to the hospital by the school physician. There was present a linear cicatrix or opacity in the cornea which doubtless interfered so much with the sight that the physician had regarded the case as one which required refraction. There were no visible signs of connection between the corneal nebule and the iris, neither were there evidences of disease of the lens, the choroid, or the retina. On casual inspection, there appeared to be a horizontal coloboma at the outer side, which, on closer inspection, was found to consist of imperfectly developed superficial layers of iris, with a dense hyperplastic overdevelopment of the deeper fibrous layer. The fibers extended quite visibly for some distance above and below the main aperture, and shone through the feebly developed overlying layers, which condition was not distinctly seen at some distance from the eye. In addition, directly opposite at the nasal side, there is a circular aperture, which, when the ophthalmoscope is used, transmits the light through a distinctly fibrous background. In the right eye in an exactly corresponding position at the nasal side, is a similarly rounded area which has the appearance of being only the deepening of a crypt, and does not transmit the fundus glare. Atropin effected complete mydriasis when the eye was found to be entirely normal. Atropin in the left caused contraction of the nasal pillar, but apparently had no effect on the temporal.

Dr. Chance desired to show the immediate effects of an operation which he undertook two days before for the repair of a contracted socket. The patient is the woman on whom he performed the "Maxwell" operation to affect the lower lid, exhibited before the society a year or so ago. The "Maxwell" procedure had yielded most satisfactory results in so far that the lower lid, instead of extending far into the floor of the orbit, had become sufficiently everted to give room for a modified glass eye. The transplanted island of cheek tissues had increased the cavity of the orbit in that locality by so much as the dimension of the island. The upper lid was so distorted and so matted and drawn up into the orbit, that the "Maxwell" procedure could not be considered suitable; but by the advice of Dr. Schwenk and with his assistance and direction he determined to undertake that procedure which Dr. Schwenk devised for the relief of a case under his care in December, 1915, the principle of which consisted in the separation of the mucous membrane adherent to the orbital mass, by a submucous dissection, together with the subcutaneous dissection of the skin of the lid from the tarsal tissues, and in connecting the cavities thus formed by severing the intervening tarsal tissues. A new culdesac was formed by uniting the interior surfaces of the mucous membrane and of the skin by means of three mattress sutures. An elliptical shaped piece of sheet-lead was then inserted into the mucous cavity. Bandages were applied, and today, on the removal of the lead "conformer," a quite freely movable lid is present behind which is a distinct culdesac.

Dr. Risley reported a case of sudden blindness in which the patient had applied for treatment at his clinic a few days before. The man (a young Italian) had gone to bed in the evening without any impairment of vision, but woke in the morning totally blind. The ophthalmoscope revealed no cause for the man's misfortune. Investigation brought out the fact that for two weeks the man had been drinking a beverage which seems to be a favorite with the laboring men among the Italians, and which is made up of a quart of alcohol, one pound of granulated sugar, and three quarts of water, to which is added the contents of a two-ounce bottle of extract called "Rosa Rossa" (Red Rose), red in color, the chemical nature of which was not ascertained. This mixture is boiled and used as a beverage. It occurred to Dr. Risley that wood alcohol might have been used in composing the mixture, but a specimen shown by the man's wife, who had purchased the ingredients, proved to be grain alcohol. As soon as inquiry about the alcohol was made she became suspicious, and there was room for doubt as to whether the specimen furnished was the same as that employed in the mixture. No other cause for the sudden onset of blindness could be discovered.

Dr. Posey exhibited a case of dislocation of the lens into the anterior chamber, in a man about 60 years of age. There was a subluxation of the lens of the other eye, due to a congenital weakness of the zonule of Zinn, a brother about the same age showing a similar weakness in each eye. Dr. Posey proposed to remove the lens from the anterior chamber by a linear incision.

Harold W. How, Secretary.

COUNTY SOCIETY REPORTS

DAUPHIN—DECEMBER

The Dauphin County Society met in the lecture hall of the Harrisburg Academy of Medicine, December 7, at 8:30 p. m., with President Kilgore in the chair.

Dr. Harvey Smith read a paper on "Gallbladder Infections." He limited his subject to the clinical and pathological picture of gallbladder infections as presented by a study of 180 consecutive cases in which operation was performed. Dr. Smith recalled a few interesting facts and in part he spoke as follows: The gallbladder is but a part of the biliary system and associated organs of digestion. These associated organs are related embryologically, anatomically and physiologically. Infection is the underlying cause of gallbladder disease. The most likely point of entrance is through the circulation. For convenience of study three groups were made: Cholecystitis: (1) without stones; (2) with stones; (3) with stones and additional complications. The clinical picture changes with the progress of the disease, while the pathological phases are stages of pathological process which consists of an infection of the gallbladder mucosa, the cystic duct, the common duct, pancreas or liver. The duct infection may add the element of a mechanical obstruction. The clinical picture of cholecystitis is not a positively diagnostic one. In many cases a correct diagnosis cannot even be approached without a general consideration of the causes of recurrent or persistent gastric disturbances. Is the cause a lesion in the stomach itself or reflex from some associated organ? Or is the trouble functional and associated with a constitutional disease? Or is it an acquired or congenital neurosis? All these possible conditions may have to be considered and eliminated. In this series there were seven operative deaths; three were common duct cases and one was cancer of the gallbladder.

The paper was discussed by Dr. Theodore B. Appel of Lancaster, who brought out many interesting points.

Dr. Appel, chairman of the Board of Trustees of the Medical Society of the State of Pennsylvania, presented Dr. J. B. McAlister, who retired from the presidency of the state society at the Scranton Session, an exceptionally pretty ivory gavel as a token of appreciation from the state society for the admirable work which he did for the society, not only while its president but for many years before. The Dauphin County Society deems it an honor to have one of its members given the first recognition of this kind in the history of the state society. We also feel highly gratified that the various sections of the society have honored several others of our county society with important official positions during the past three years. This should be an incentive for even greater work on our part that we may be a tremendous force for the betterment of the society and thereby for the advancement of the medical profession.

H. Hershey Farnsler, Reporter.

DELAWARE—DECEMBER

The Deleware County Society met at the Chester Club, December 21, at 3:30 p. m., on invitation of President Campbell. About forty members were present.

Dr. J. L. Forwood spoke on "Then and Now," taking us back to the time when he graduated in 1857 at the University of Pennsylvania. He depicted most interestingly the methods then in vogue in the making of a doctor, dwelling on the lack of material for teaching and study in the various branches of medicine. Little or no practical work in obstetrics was obtained. Dr. Forwood becoming ill at the meeting was compelled to leave and Dr. D. W. Jefferis continued the subject along the same lines, having graduated from the same school in 1865. Other members of the society in turn became reminiscent.

A bountiful turkey banquet was next on the program and Retiring President Campbell was unanimously declared a fine host.

W. E. Egbert, Reporter.

LEBANON—JANUARY

The Lebanon County Society met in the courthouse, January 9, at 3 p. m. The retiring president, Dr. John C. Bucher, delivered an address on "Our Society, Its Future." Dr. Bucher thanked the members for their help and courtesy during the past year. The year's program as arranged by the committee was carried out fairly well, yet there is room for improvement. He believes it to be advantageous to have the program largely filled by local men instead of men from a distance. The one who reads the paper is greatly benefited and the discussions are always freer. Occasionally, however, outside men should be procured. The average attendance has been good but Dr. Bucher believes that more could have attended. It is not only the knowledge gained but the fellowship that is fostered in the meeting monthly. He suggested that the meetings in the summer months be held at different places throughout the county and in this way instill new life into the organization. Luncheons, occasionally, were advised. Public meetings should be held; newspaper articles written along common topics and assistance rendered the health board in making the town cleaner. The baby show should be encouraged each year. The various delegates to the annual session of the state society should be chosen early in the year and all credentials made out so that when the time comes there will be no undue haste in order to be properly represented. Dr. Bucher recommended that a fee bill be inaugurated so that a standard scale of prices be followed. Times are rapidly changing and the sooner the physicians get together along this line the better it will be for everyone concerned. This scale of prices should be hung in the waiting rooms in full view of the people and should be strictly adhered to. The physician should receive compensation for making out various reports. He recommended also changes along several lines in the Compensation Law.

Dr. Walter H. Brubaker, the newly elected president, made some brief remarks and appointed committees.

George R. Pretz, Reporter.

MONTGOMERY—DECEMBER

The Montgomery County Society met at Charity Hospital, Norristown, December 6. Dr. Frank C. Knowles of Philadelphia gave a talk on "Parasitic Skin Diseases," which was illustrated by lantern slides. The subject was discussed by Drs. Corson, Quinn, Knipe, Elmer, McKenzie, Hunsberger and Roberts.

Dr. J. K. Weaver, chairman of the Committee on Public Policy and Legislation, reported as to what was being done in other counties and what could be done in this county toward the establishment of a hospital for contagious diseases, and also gave a lengthy report on the Compensation Act and how it should be changed as pertaining to physicians.

At the meeting of December 20, held at the Bryn Mawr Hospital, Dr. E. H. Goodman of Philadelphia read a paper on "Lesions of the Stomach and Intestines." He was followed by Dr. E. Burvill Holmes of Bryn Mawr, who gave a lantern demonstration of radiographs of the esophagus, stomach, intestines and appendix. The paper showed the new in radiography. It was discussed by Dr. Thomas and closed by Dr. Goodman. A vote of thanks was extended to Drs. Goodman and Holmes for making the meeting so interesting.

A letter from the secretary of the state society, asking that Mr. F. N. Stanbridge, a representative of the American Medical Association, be permitted to secure new members for the county society, was read, and it was agreed that he should come.

The society voted $25 to the Woman's Medical College to aid in a memorial to be erected to Dr. Hiram Corson, who was one of the first physicians to advocate women as physicians and through whose efforts the first woman physician admitted to any medical society in the state was admitted to the Montgomery County Society.

The following amendment to the By-Laws was passed:

Resolved, That Article IX of the By-Laws be amended by adding Section 6 as follows:

Section 6. The president shall appoint within one week following the annual meeting a committee of three members to be known as the Finance and Accounts Committee. It shall be the duty of this committee at all times to keep itself posted in the financial affairs of the society, and make a report to the society when necessary in reference to the same. It shall apportion the known revenue of the society in accordance with the society's fixed expenditures to the various committees and report its recommendations to the society before the second business meeting of each year and also promptly report its recommendations on all other financial matters referred to them by the society.

Edgar Stanley Buyers, Reporter.

PHILADELPHIA—DECEMBER

The Philadelphia County Society met December 13, at 8:30 p. m., with President McLean in the chair.

"Poisonous and Disease-Carrying Insects in and Around Philadelphia," was presented by Dr. Herman Hornig, city entomologist, who gave a lantern demonstration of the many types of flies, malaria-bearing mosquitoes breeding in the vicinity of Philadelphia, especially in unoccupied houses; catapillars, etc., and described methods used by the city for their eradication. Over one hundred lantern slides were used in the demonstration, and it was very interesting and instructive. Samuel McClary, III, Reporter.

SOMERSET—JANUARY

The Somerset County Society met at Confluence January 16, with a small attendance.

Dr. E. B. Claybrook of Cumberland, Md., gave a paper on "A Lump in the Breast." With drawings on a blackboard he showed the progressive development of a lump in the breast, which very often is also very rapid, until it has gone beyond the control of any successful treatment. The period at which a benign tumor, if it is benign, becomes malignant is beyond the ken of most men and few there are who would venture to designate the stage. They can know when it is malignant but then it may be too late for successful treatment. Dr. Claybrook recommended radical treatment as soon as the tumor is discovered even though it be very small. He could take up only this one form of cancer and had to leave the discussion unfinished. He believes it is better to let the patient know the possibility of such lump in the breast becoming malignant if it is not already so, and thus place the responsibility on the patient for successful treatment.

Nearly every one present showed his interest by questioning Dr. Claybrook on the subject and much information and many satisfactory explanations were given. H. C. McKinley, Reporter.

NECROLOGY

IN MEMORIAM—Alfred Myers, M.D.

(Resolutions adopted by the York County Medical Society in memory of Alfred Myers, M.D., who died Jan. 5, 1917.)

Whereas, It has pleased the Almighty in His infinite wisdom to remove from our midst our friend and fellow physician, Dr. Alfred Myers, one whom we have always esteemed for his high professional attainments, therefore be it

Resolved, That we, the members of the York County Medical Society, express our deep sorrow at the loss of this member whose companionship we sadly miss; and be it

Resolved, That we tender our sincere sympathy to the members of the family into whose lives this sorrow has come, and be it further

Resolved, That a copy of these resolutions be sent to the family of the deceased, that a copy be inserted in the state journal, and a copy placed in the minutes of the York County Medical Society.

Louis S. Weaver,
Charles Rea,
G. Emanuel Spotz.

IN MEMORIAM—Guert M. Tinker, M.D.

(Resolutions adopted by the Mercer County Medical Society, Jan. 11, 1917.)

It is with feelings of the deepest regret that it becomes the sorrowful duty of the members of the Mercer County Medical Society to record the death of one of its valued members. Dr. Guert M. Tinker of Sharon died of acute septicemia, received in the course of professional duties. He was a man of many loving qualities; his genial smile endeared him to his patients as well as to the medical profession. In his death the community has lost a willing and valuable physician, and his family a loving father and husband and the medical profession an honored member.

Whereas, Almighty God has seen fit to remove from our presence Dr. Guert M. Tinker, member of our society, member of the state society and of the American Medical Association,

Resolved, That we tender our sincere sympathy to the members of the family into whose life this sorrow has come.

Resolved, That a copy of these resolutions be sent to the family of the deceased, that a copy be sent to the Journal for insertion and a copy be placed on the minutes of this society.

J. H. Reed,
Allan P. Hyde,
C. C. Marshall.

THE TRUTH ABOUT MEDICINES

NEW AND NONOFFICIAL REMEDIES

Since publication of New and Nonofficial Remedies, 1916, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies":

FORMIN TABLETS, 5 GRAINS AND 7½ GRAINS.—Each tablet contains 5 grains of formin (see New and Nonofficial Remedies, 1916, p. 138). Merck and Co., New York.

VERONAL TABLETS, 5 GRAINS.—Each tablet contains 5 grains of veronal (see New and Nonofficial Remedies, 1916, p. 92). Merck and Co., New York (*Jour. A. M. A.*, Jan. 6, 1917, p. 35).

UREASE.—An enzyme found in certain beans, fungi and micro-organisms which, in the presence of water, converts urea into ammonium carbonate. It is used in the determination of urea in the urine, blood and other body fluids, either by determining the increase in alkalinity of the fluid to which it is added, or else the ammonia produced by it in the fluid is removed and estimated.

UREASE-SQUIBB.—A standardized preparation of urease obtained from the jack bean. It is supplied in the form of powder and tablets containing 0.1 Gm. E. R. Squibb and Sons, New York.

NEUTRAL SOLUTION OF CHLORINATED SODA.—Solution Chlorinated Soda, Dakin.—Solution Chlorinated Soda, Carrel-Dakin.—A chlorinated soda solution, containing 0.43 to 0.48 per cent. of available chlorine, free from caustic alkali. It is prepared by treating a suspension of chlorinated lime in water with definite amounts of sodium carbonate and sodium bicarbonate and adjusting the separated clear liquid to the required content of available chlorine. The solution is not reddened by phenolphthalein. It must be protected from light. The solution has been used for the irrigation of wounds, especially infected war wounds.

THEOBROMINE-MERCK.—A brand complying with the standards for theobromine-N. N. R. Merck and Co., New York.

BARIUM SULPHATE, P. W. R. FOR X-RAY DIAGNOSIS.—A brand complying with the standards for barium sulphate for Roentgen-ray work-N. N. R. Powers-Weightman-Rosengarten Co., Philadelphia.

BARIUM SULPHATE, MERCK FOR X-RAY DIAGNOSIS.—A brand complying with the standards for barium sulphate for Roentgen-ray work-N. N. R. Merck and Company, New York (*Jour. A. M. A.*, Jan. 13, 1917, p. 121).

ACETYLSALICYLIC ACID.—Acidum acetylsalicylicum. Aspirin. The acetyl derivative of salicylic acid. Dosage: 0.3 to 1.0 Gm., repeated once in three hours until symptoms of salicylism are noted. It may be dispensed as powders (in wax paper), wafers or capsules.

IOCAMFEN.—A liquid obtained by the interaction of iodin 10 parts, phenol 20 parts, and camphor 70 parts, containing about 7.25 per cent. free iodin. Iocamfen is said to have the antiseptic and germicidal properties of iodin and also the analgesic, stimulating and antiphlogistic properties of camphor and phenol. It is used in dressing wounds, etc. Iocamfen is also supplied as Iocamfen Ampules, containing 20 minims iocamfen. Schering and Glatz, New York (*Jour. A. M. A.*, Jan. 20, 1917, p. 199).

PROPAGANDA FOR REFORM

THE J. B. L. CASCADE TREATMENT.—The "treatment" is exploited by Charles A. Tyrrell, New York City. It consists in the self-administration of rectal anemas by means of a device, the J. B. L. ("Joy-Beauty-Life") Cascade. The "complete treatment" includes a stick of Tyrrell's "famous Rectal Soap" and a box of the "Celebrated J. B. L. Antiseptic Tonic." The "tonic" was analyzed in the A. M. A. Chemical Laboratory and found to be a mixture of sodium chloride and impure borax, colored and perfumed. The laboratory concluded that a preparation having all the "antiseptic" and "tonic" properties of J. B. L. Antiseptic Tonic can be made by mixing 2.8 ounces common salt with 1.2 ounce powdered borax (*Jour. A. M. A.*, Jan. 6, 1917, p. 50).

TOXICITY OF SALVARSAN AND NEOSALVARSAN.—Claude L. Shields, M.D., Salt Lake City, reports that out of the last twenty-three injections of neosalvarsan four cases exhibited severe poisoning and one resulted in death. He reports the experience of other physicians of severe toxic symptoms from the use of recent shipments of salvarsan and neosalvarsan (*Jour. A. M. A.*, Jan. 6, 1917, p. 53).

Q-BAN HAIR COLOR RESTORER.—Untoward effects from the use of Q-Ban Hair Color Restorer are reported. The Connecticut Agricultural Experiment Station reported the "restorer" to be a perfumed, alcohol-glycerin solution of 1.68 Gm. per 100 Cc. of lead acetate, containing 3.08 Gm. of free sulphur in suspension. The Connecticut report states: It is simply one of the many familiar lead acetate-sulphur preparations, and its use is by no means free from danger (*Jour. A. M. A.*, Jan. 6, 1917, p. 54).

THE SEARCH FOR THE IDEAL ANTISEPTIC.—R. A. Lambert has followed the effect of the same chemical agent on bacteria and tissue cells growing together in vitro. He finds that the growth of tissue cells is more easily affected by potassium cyanide, phenol, tricresol, hydrogen peroxide and alcohol than was the growth of bacteria. Iodin stands out as the one chemical tested to which tissue cells were found more resistant than were staphylococci. A good growth of cells was seen after exposure to a 1 in 2,000 solution of iodin for an hour—a strength sufficient to sterilize the tissue completely in most instances. Lambert points out that the power of iodin to dissolve fibrin may be an objection to its use as an antiseptic wound dressing (*Jour. A. M. A.*, Jan. 6, 1917, p. 40).

IRON CITRATE, GREEN.—H. K. Mulford Company and E. R. Squibb and Sons submitted to the Council on Pharmacy and Chemistry ampules containing solutions of iron citrate, green. It thus became necessary for the Council to consider the eligibility of iron citrate, green itself for admission to New and Nonofficial Remedies. As the rules of the Council provide that non-essential modifications of official or nonproprietary preparations will not be recognized, the above named firms were asked to state what advantage, if any, the so-called iron citrate, green has over the official iron and ammonium citrate. Inasmuch as no evidence was presented to show that iron citrate, green has any advantage over the well-known iron and ammonium citrate, the Council held that iron citrate, green and with it the dosage forms, were ineligible to New and Nonofficial Remedies. Advised of this decision, the Mulford Company replied that in the present case it felt bound to supply the existing demand. Squibb and Sons replied that, to give the Council its support in this matter, the sale of iron citrate, green and ampules thereof would be discontinued (*Jour. A. M. A.*, Jan. 13, 1917, p. 135).

More Misbranded Nostrums.—Chiefly because of unwarranted therapeutic claims, the following "patent medicines" were found misbranded under the Federal Food and Drugs Act: Goff's Cough Syrup, a syrup containing some vegetable extractive and traces of iron, iodids, antimony and alkaloids.——Goff's Herb Bitters, a water-alcohol solution of aloes, sugar and alkaline carbonate flavored with peppermint.——Dander-Off, an alkaline solution of borax and white arsenic colored with coal-tar dye.——Tu-Ber-Ku, a tuberculosis cure containing 20 per cent. alcohol.——Electrozone, claimed to contain or to liberate ozone.——Orange Blossom Female Suppositories, containing boric acid, aluminum salt, sulphate, potassium salt, sodium salt, starch and petrolatum.——Dr. Simpson's Vegetable Compound, essentially an alcohol-water solution of potassium iodid with a small amount of vegetable extractive in which podophyllum, licorice and gentian were indicated.——Weller's Stone Root and Gin, containing 37.5 per cent. alcohol (*Jour. A. M. A.*, Jan. 13, 1917, p. 135).

Acetylsalicylic Acid, Not Aspirin. — While Aspirin-Bayer has been omitted from New and Nonofficial Remedies, the product is retained under its scientific name, acetylsalicylic acid, and standards are provided to ensure the reliability of the market product. The Aspirin patent expires in February, 1917, and after this time other manufacturers may make and sell the product. One firm's brand, that of the Powers-Weightman-Rosengarten Co., has been accepted for New and Nonofficial Remedies, 1917. Hereafter physicians, when prescribing the compound, should use the scientific name "acetylsalicylic acid" (*Jour. A. M. A.*, Jan. 20, 1917, p. 201).

Aspirin-Bayer Omitted from N. N. R.—Aspirin-Bayer is advertised to the public, indirectly by means of "vest-pocket" boxes bearing the name "Aspirin" permanently affixed, and directly by means of extensive newspaper advertising. Inasmuch as this advertising propaganda is an infringement of the rules of the Council and is against the interests of public health, the Council voted to omit Aspirin-Bayer from New and Nonofficial Remedies (*Jour. A. M. A.*, Jan. 20, 1917, p. 213).

More Misbranded Nostrums.—The following "patent medicines" have been declared misbranded under the U. S. Food and Drugs Act, chiefly because unwarranted curative claims were made for them: Dr. Thatcher's Liver and Blood Syrup, claimed to cure all liver complaints and many other ailments.——Black's Pulmonic Syrup, a water-alcohol solution of ichthyol, glycerin and sugar.——Walker's Pain Destroyer, an alcoholic solution of oil of mustard, chloroform, opium and collodion.——Musterole, a mixture of lard or some similar material with oil of mustard, menthol and camphor.——Snyder's Bitters, claimed to eradicate scrofulous humors, syphilitic affections, cancerous humors and many other ailments.——"5 Drops," a mixture of eucalyptol (or a eucalyptol-containing oil), camphor, safrol, terpineol and eugenol (or an oil containing those ingredients, such as camphor oil).——Dr. Stuart's Specific Drops, a mixture of camphor, alcohol, mercuric iodid and turpentine (*Jour. A.M.A.*, Jan. 20, 1917, pp. 214-215).

Pil. Cascara Compound-Robins (A. H. Robins Company, Richmond, Va.). The Council on Pharmacy and Chemistry reports that Pil. Cascara Compound-Robins is an example of the innumerable mixtures of well-known drugs having nothing in the way of originality or of special therapeutic value to recommend them. The claim that the pills contain no belladonna when they admittedly contain hyoscyamus is, in view of the similar action of these two drugs, a manifestation of ignorance on the part of the manufacturer or an effort to impose on the medical profession. The promotion of this mixture as "an ideal aid to any remedial agent when a mild, medium or strong alimentary stimulant is needed" is a slur on the intelligence of physicians. The Council finds Pil. Cascara Compound-Robins not acceptable for New and Nonofficial Remedies (*Jour. A. M. A.*, Jan. 27, 1917, p. 303).

Casta-Flora. — The Council on Pharmacy and Chemistry reports that Casta-Flora, put out by the Wm. S. Merrell Chemical Co., is one of those complex preparations which are offered to the medical profession with plausible arguments in support of the claims made. The Council finds the claims made for this mixture of drugs—which is said to contain or represent chestnut leaves, passion flower, gelsemium, elecampane, "iodized lime," menthol and yerba santa—and for the individual ingredients thereof, extravagant and misleading. Even if the ingredients, or certain of them, were useful in the treatment of those conditions for which Casta-Flora is recommended, no one could possibly forsee the effects in any given case from this jumble of drugs. The Council holds that the prescribing of such mixtures, the action of which cannot be foreseen, is plain charlatanism and declares Casta-Flora inadmissible to New and Nonofficial Remedies (*Jour. A. M. A.*, Jan. 27, 1917, p. 303).

THE SURGEON AS A LIFE-SAVER

The true facts about the work of Dr. Alexis Carrel at the American Hospital at Paris (Neuilly), which are now attracting a somewhat sensational attention, warrant any enthusiasm that the medical profession and the laymen may express, for they show the surgeon as life-saver on a scale hitherto considered impossible in war. And yet what Dr. Carrel has done is simplicity itself, since, as announced by him early in October, in cooperation with the American Ambulance Service, he first shortened the time that it took to fetch the wounded from the trenches to the hospital, and, secondly, he subjected the wounded, at the earliest possible moment, to the new antiseptic treatment by which blood-poisoning was prevented. As a result of these two simple precautionary measures, the wounded at the hospital not only do not have to undergo so many operations, brought about by infection of the wounds, but the healing of the wounds is quickened and the death rate lowered, and what is more, the application of the marvels of plastic surgery, by which the unfortunates are restored to some semblance of humanity, is enormously developed. Consequently through this splendid cooperation results are being achieved that surpass all expectations as to the saving of life and restoring the wounded, and that this is done by Americans must be a source of gratification to us.—Philadelphia *Ledger*.

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ORIGINAL ARTICLES

TYPHOID AND TYPHOPHORS*

SAMUEL G. DIXON, M.D., LL.D., Sc.D.
Commissioner of Health
HARRISBURG

It is always a pleasure to participate in these annual meetings of the state medical society. When some time since I promised to read a paper before you I had hoped to speak at length on the subject of typhoid fever. I did not know then that I was to pass through the strenuous weeks which have recently been my lot. The result is that I have not been able to prepare such a paper as I had in mind and to present at length certain scientific aspects of the topic which I had hoped to include. There are, however, some facts concerning the work of the department of health relative to typhoid fever which I should like to bring to your attention, and I shall also speak more particularly of several outbreaks which have peculiar interest and which for the most part have not been published.

My appointment as commissioner of health was made by the late Governor Pennypacker in June, 1905. In this month the members of the advisory board of the department of health were also appointed, three of whom are still members of that body.

The organization of the department, in which Governor Pennypacker showed keen interest, was undertaken at once and in a short time we were busy taking care of various outbreaks of communicable diseases. Among these early epidemics the most notable, although not the earliest, was the occurrence of typhoid at Nanticoke at the beginning of September. Many others followed but it was as yet impossible to determine the full significance of our efforts or to measure such success as we attained.

The reason for this was that we had no statistical basis for such measurements. As I pointed out in my first annual report, speaking of typhoid fever, we only knew that Pennsylvania stood high in the list of states having a large typhoid death rate, "but what the actual mortality was no one knew or could do more than make a very wide guess at." For the larger cities we had death rates which were sufficiently appalling, but even from them morbidity statistics could not be obtained.

Our Bureau of Vital Statistics began its work directly after the organization of the department but the establishment of a corps of local registrars, on whom the collection of statistical information necessarily depends, required, of course, much time. Consequently, it was not until the beginning of the next year that the material became available for any general comparison and thus the year 1906 is the first year for which we have statistical information concerning mortality and morbidity in the state as a whole. Thus it comes that although the department has existed somewhat more than eleven years our statistical period is shorter.

Consider briefly without long tables of figures what our statistical showing is for typhoid fever. We began in 1906 with 3,917 deaths from this disease, that is 54.8 in a hundred thousand. Last year (1915) such deaths numbered 1,025, or at the rate of 12.2 in a hundred thousand. The reports for the present year indicate that the rate will show no marked change unless large outbreaks occur in the last quarter of the year. This means that the deaths now attributed to typhoid fever are only 26 per cent. of those of 1906, and the rate for such deaths is 22.3 per cent. of that of 1906.

One is always tempted to ask what the deaths would be if there had been no change of rate in the past ten years.

The estimated population of the state is now a million and a quarter greater than in 1906, so that at the earlier rate we should have had in 1915 4,594 deaths instead of 1,025.

Similar is the story of the morbidity. In 1906, 24,471 persons were reported sick of typhoid fever; that is, 342.6 in every hundred thousand. Since then the morbidity has almost steadily declined and in 1915 only 8,048 were thus reported, 32.8 per cent. of what it used to be, and at the rate of ninety-six in a hundred thousand, a drop in the rate to less than three tenths of the old rate (28 per cent.), or, again, only eight thousand were ill where 28,724 were to be expected. The cases of 1916 thus far tabulated indicate little change in the rate. These figures permit another interpretation. They mean that 22,441 persons have not died in Pennsylvania as they might have been expected to do under earlier conditions (have been "saved," as is sometimes said), and about six times as many (more precisely 132,980) have been spared an experience of typhoid fever. Doubtless this salvage would be far greater if our figures went back further. What these gains signify to the state I will leave to your imagination, and am sure that no right-minded physician will feel any regret that all these persons have also escaped many bills for medical attendance. They have at least been able to acquire other diseases.

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* Read before the Section on Medicine of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 20, 1916.

Far be it from me to suggest that all this gain as to mortality and morbidity is due to the activity of the department of health. Our protection of the water supplies by inspection and the abatement of nuisances, and the restraints which have been placed on the flow of sewage into our streams have undoubtedly done much to lessen the menace to public health which formerly existed and is not yet completely removed. In other ways we have probably contributed by the lessons taught to communities in which epidemics have occurred and have been under our supervision. In yet other places our inspections and instructions may have been helpful. But there have been other important influences at work which must be looked on as contributing to the decline of typhoid fever in Pennsylvania. In this period, you practicing physicians have done much to spread abroad the doctrines of sanitation and this must have been an important factor in awakening the public to an appreciation of what a community may do to avoid sickness.

I have already mentioned the fact that the rates for mortality and morbidity promise to be an indication that a limit or a dead point has been reached in the decline. There are still too many conditions in play to bring about an outbreak of typhoid fever to permit us to believe that we have anywhere near completed the preventive measures to be adopted. There are also sure to be numerous ambulant cases which come to us from the outside and may do much harm before detection. Yet other external sources exist from which typhoid may come into Pennsylvania through food or drink without being easy of recognition.

Another source of danger against which no adequate protection has been found is the "carrier." So numerous are the diseases which are known to be distributed by carriers (or germifers, to use a term which has been suggested as a general name) that it is becoming desirable to have a special name for one who "carries" typhoid fever. For this kind of a carrier the word *typhophor* is proposed as brief and distinctive.

The person who is a typhoid carrier or carrier of typhoid bacilli or, more simply, a typhophor, is at present a very dangerous person although commonly a thoroughly innocent person, one who is likely to need sympathy in growing measure. The department has had occasion to deal with many outbreaks where such an agent was involved, and some of these call for a brief presentation which may be profitable at this time.

Cases of typhoid fever more or less clearly suggesting the influence of a carrier have been numerous, but clean-cut demonstrations of this source of infection have not been equally numerous in the experience of the department of health.

Last year we had occasion to investigate the prevalence of typhoid fever at Newport in Perry County. This place with a population of some two thousand had been particularly free of typhoid for many years until the brief outbreak in which the onsets began in the middle of April and kept coming for nearly three weeks. There were sixty-eight cases with nine deaths. The full report carries many interesting details and will appear in my annual report now nearly ready for the printer. At this time I shall only touch on a very instructive portion dealing with the perplexing influence of a carrier and the happy outcome of the treatment given her.

The investigation quickly made it clear that the infection was in some way due to the milk supply. When this clue was followed out it led us to a certain vendor who had a milk farm a couple of miles outside the town. On this farm were seventeen persons, many of whom might have infected the milk. For all such the personal history as to typhoid fever or related diseases was altogether negative. It was, however, deemed prudent to make careful agglutination tests of the blood of each person on the farm who came in contact with the milk. Thus we found that a sister of the vendor gave a positive Widal reaction, so strong that it proved to be positive even with a titer of 1 : 800. Further laboratory tests gave negative cultures from the blood and urine, but from the feces a typical *Bacillus typhosus* was recovered.

She had come to this milk farm at the beginning of April and had aided regularly in the evening milking, which was found to be exclusively responsible for the outbreak, and had in a very limited way assisted at the morning milking.

Her story is peculiarly important. For a couple of years she had lived elsewhere in the country at some distance from the Newport district. Early in February her husband became ill of typhoid fever which, however, was not clearly diagnosed for almost two weeks, and she nursed him until his death nearly a week later. During this time she had carried on her household work and continued to be thus active until her removal to her brother's farm five weeks after the death of her husband. From her account of this illness it seems probable that the precautions calculated to prevent secondary infection were not taken, and she explicitly declared that she herself had been perfectly well during all these weeks and had not had even a headache.

Here then is a particularly clean-cut case of a carrier of typhoid bacilli who ordinarily would not arouse suspicion. Naturally her condition as the quite innocent cause of a considerable epidemic and a possible source of further trouble attracted much attention at Newport. Friends interested themselves in her behalf and an effort was made to procure special treatment for her in some hospital, that the stigma of being a typhoid carrier might be removed. After some inquiry Prof. Alfred Stengel indicated his willingness to see what could be done for her, and about the middle of June she entered the University Hospital in Philadelphia for this purpose.

The examinations there made were a full confirmation of the results of the various examinations made in the laboratories of the department in May. I give a brief extract from a report of July 9:

> Widal strongly positive; blood culture sterile; culture of the urine sterile; three cultures of the feces; from the third was isolated an organism which culturally, morphologically, and in its agglutination reactions is identical with the typhoid bacillus. The organism is, however, non-motile. Roentgen-ray examination for gallstones negative. We consider the examination of the patient now progressed to the point where it is proper to attempt the elimination of the organism found at the last stool culture and the first method to be tried for this end is the use of kaolin.

The condition of Mrs. W. showed much improvement as was evident when she was visited by the associate chief medical inspector on July 29, when she was still under treatment with kaolin. This treatment, however, did not prove to be satisfactory. An autogenous vaccine was then prepared and used with success. Concerning her further progress I make this excerpt from a letter sent by Dr. Stengel on October 21:

> We have been able to confirm the findings of your department, and have since conducted a number of studies in the case, and have placed her on treatment with the object of curing the condition. I am glad to be able to report that we have now had six successive negative stool cultures and we feel, therefore, that, for all practical purposes, the patient is ready for dismissal.

A few days later she returned to her home near Newport, and on October 28 an interested person wrote: "She is delighted, her family and friends are pleased, and I am relieved."

That was almost eleven months ago, and we are informed that she has since this treatment remained in good health. About six weeks ago she was visited by the assistant chief medical inspector of the department who found her in excellent condition. Samples of her excreta were obtained and sent to the laboratory for examination. The report returned was altogether negative, indicating that the outcome of the treatment of last year was permanent.

Last year in Lewistown and vicinity there were cases of typhoid fever which raised many questions. Lewistown is the county seat of Mifflin, and its population ranges between eight and ten thousand, according to the prosperity of the industries. In the spring there were seventeen cases with onsets between May 13 and 31. Seventeen cases in a place of this size are not so many. It was rather the peculiar distribution of them that called for careful study. I cannot now ask you to listen to the petty details of an investigation which led to the conclusion that the infection came from a single dairy and that the distribution was due to the peculiar fashion in which the milk of this dairy was handled. No other evident cause for these cases could be found although there were other conditions which at first suggested danger. The owner of this dairy had had typhoid in October, 1906, or almost nine years before the trouble in 1915. It was inferred that the dairyman might be a carrier and the examination of a specimen of his stools was undertaken in June with an uncertain result. It later appeared, however, that this result was probably due to the improper preparation of the container in which the specimen was shipped. His blood serum was examined at the same time and was negative to the test of Widal.

The cause of this epidemic was thus in doubt and the milk dealer whose milk was under suspicion voluntarily stopped further sale and appealed to the local authorities to ascertain the facts in the case. Fortunately, that is fortunate for our present purpose, Lewistown had another small epidemic of twenty-one cases later in the year. This led to further investigation in November. Here again the milk of the same dairyman was inculpated and no other convincing explanation of the outbreak could be found.

It was thought best again to send samples of his blood, urine, and feces to the laboratories of the department and the report was that, while the blood and urine were negative, typhoid bacilli had been found in the stools. The status of this milk producer as a carrier was established and these two outbreaks at Lewistown were given a reasonable explanation as was also the occurrence of several cases a year earlier on a farm adjoining the dairy farm. Here was quite possibly a carrier whose carriership was intermittent or his alleged habit of carefully washing his hands before every milking may have been subject to lapses. It is still possible that he infected certain portions of the milk in some other way although it appears to be the milk of his own milking which became infected.

I should also like to speak of the unfortunate career of a dairyman in Blair County although of an earlier date, but not published by the department. On a farm near Roaring Springs almost eight years ago (November, 1908) this man had a very mild attack of typhoid fever which was not reported, possibly not recognized, by his physician at the time. This particular occurrence has been the occasion of some discussion but the version given by the man himself to a medical representative of the department on the twelfth, *i. e.,* a week ago, is that which I present.

Shortly after his speedy recovery he resumed his work as a dairy farmer. The next summer (1909) his milk went to a dealer of Altoona. In August and September there were in Altoona thirty-four cases of typhoid with three deaths traceable directly to this dealer and ultimately to the dairy farm under consideration.

An inspection was undertaken by the county medical inspector and the health officer of this township from whose notes this story is taken in part. The conclusion was that the milk had become infected through cistern water polluted by a neighbor's privy. The producer was not at this time under suspicion as a carrier. The sale of the milk was then stopped pending certain changes which were to be made in the water supply. Presently the dairyman moved to another farm and began to ship his milk to a different retailer in Altoona. In July and August, 1910, there were in Altoona thirteen cases of typhoid with one death, again directly traceable to this milk. The sale of this milk in Altoona was then forbidden by the board of health until it should be determined whether the farmer or anyone else on the farm were a carrier. Hereupon the dairyman went out of business. A year later, October, 1911, he wished to resume dairy farming. At this time an examination of his stools showed typhoid bacilli, and accordingly he was not permitted to handle milk. In 1912 he stated that he had been treated by a physician who claimed to have cured him and said that the "germs" had disappeared from his excreta. Other specimens, however, taken at this time and examined in the laboratories of the department as well as by Dr. Brumbaugh of Altoona still showed typhoid bacilli. The dairyman then gave up the dairy business for all time and has since worked in the railroad shops at Altoona. His health has been good ever since his attack of typhoid in 1908. He is now forty years of age. There had been no examination since 1912. Last week, however, another set of specimens of his excreta was obtained and sent to the laboratories. A sample of his blood was also sent in but the report on the Widal test of that is negative.

Just a year ago we had an outbreak of typhoid fever which was probably caused by a carrier although it could not be proved. On the occasion in question there was, in honor of a pair of aged parents, a family gathering which consumed only food that was brought in already cooked, with the exception of milk and coffee. Of the twenty persons concerned in this celebration six contracted typhoid fever and these were the only persons who drank milk freely at that time, no other article of food appearing to be at fault or thus definitely eaten. The family cow was milked daily by the mother of this family party, a matron of 86. She had typhoid fever in 1905, ten years before, but was in good health with the exception of what was called "an attack of cholera morbus accompanied by diarrhea" the day before the gathering. Samples obtained six weeks after the reunion did not reveal the presence of the *Bacillus typhosus*. This is not conclusive as she may be a carrier who is only intermittently dangerous and her condition may have been unusually active because of the occurrence of diarrhea at the time of the party.

Among the investigations which are published in the annual reports of the department are many in which a carrier is believed to have played an important part. Let me refer briefly to three:

In the course of the epidemic at Troy in the autumn of 1912, evidence was found of the possible pollution of the water supply by a man who had passed through a carefully supervised attack of typhoid early in the spring. Months after his recovery, he worked as a harvest hand and frequently deposited his discharges in the fields from which they might easily be washed by the rain into the stream nearby and thus find a way to the water supply of Troy. He was shown to be an intermittent carrier and the *Bacillus typhosus* was recovered from his feces. It is difficult to see how this danger could have been anticipated except by assent to the general doctrine that after typhoid no man is harmless.

During the outbreak at Lehigh University in the autumn of 1914 the attention of our associate chief medical inspector was directed to a man who worked in the kitchen of the Commons, and had a history which indicated that he might be a carrier. His blood serum gave a positive Widal reaction on three occasions during the month he was under observation. His period of service with relation to the handling of food fell within the period of infection and no further infection occurred after his work was changed a couple of weeks before he was dismissed as a suspect. The examination of his urine and feces was undertaken on four occasions in the course of two months, but under unfavorable conditions regarding the transport of the material to the laboratories, and the results were negative.

As a pathetic supplement to the milk-borne epidemic at Skippackville, which began in August, 1914, occurred the development of a "carrier." A certain keeper of a boarding house became ill as did many of her boarders. The boarders went away but she was nursed by a clever daughter with care and skill despite her lack of special training. After the mother had apparently fully recovered from her tedious illness of ten or twelve weeks the family moved to another village perhaps a dozen miles away.

In their new home the mother at once became active in the kitchen and presently three cases of typhoid developed in the house, among them the daughter who had been the faithful nurse of the mother. This was, of course, one of those carriers who are active shortly after recovery, and her condition need not have become permanent.

Important is a story from the laboratory told in our annual report for 1913. Down in Bucks County, seven years before, in a certain H. family living on a dairy farm, several members had "typhoid fever" but all made good recoveries. After this event cases of atypical typhoid appeared now and then in the neighborhood with no apparent cause for the infection. Finally it became obvious that these cases of typhoid occurred only among those supplied with milk from the H. farm. This naturally directed suspicion to this family and steps were taken to procure samples of the excreta for an examination in the laboratory with reference to micro-organisms of the typhoid-paratyphoid group. Specimens of the feces and the urine of each person were examined at two different times. The results for the father and children were negative, as was also the urine of the mother. From her stools, however, there was isolated an organism showing all the ordinary behavior of the *Bacillus paratyphosus B* and this was corroborated by agglutinations with the blood serum of a rabbit immunized with this kind of bacillus. Such an event is no longer altogether novel, at least it has been known for some time that there are paratyphoid carriers as well as typhoid carriers, paratyphophors, if you like, as well as typhophors. They are, however, by no means common and constitute an unpleasant addition to an already complicated situation.

Let these cases suffice for today. Among the records of the department are notes of many other outbreaks, not all of them small, in which the influence of a carrier was surmised but could not be positively shown. Such conditions are certain to recur and equally certain to be hard to detect.

The law passed by the General Assembly in 1915 makes possible the exclusion of typhoid carriers from the kitchen and from some other work in hotels and restaurants and so on. As this law becomes known the public may extend its application to private houses without the extension of the law itself. It is desirable that some similar law should be made to cover the case of a milk producer or distributor. Some such restrictions might be made effective if our municipalities required every vendor of milk within the limits of the municipality to prove that no carrier of typhoid germs had participated in the production or handling of the milk thus sold. Laws of this kind, however made, will be difficult to enforce. The handling of milk usually presents the possibility of infection through any one of a series of persons.

After all, may not the remedy finally be found in the spread of the knowledge that all who have had typhoid, however light the case, are potentially carriers and in the development of what has been called the sanitary conscience leading each such potential carrier to ask for an examination? Unfortunately this development, almost indicative of the near approach of the millennium, will not reach the case of those persons who have become carriers without having any symptoms of the disease—typhoid carriers without typhoid. To reach these other measures will be needed.

Had we the time something might be said about the importance of the carrier under other conditions. Our watersheds are already in many cases carefully inspected as to the existence of pollutions and we seek to abate such when found. These may be classed as permanent or domiciliary pollutions. There are other possible pollutions of watersheds which are temporary or transient in character and do not particularly attract attention. These are introduced by construction and repair gangs which work on our roads and elsewhere. In such gangs may be found persons who have had typhoid fever and among them are doubtless carriers. The number of such is at present an indeterminable quantity, and the extent to which they threaten the communities where they work cannot be estimated. Last year we had in Shippensburg an outbreak of typhoid fever of considerable dimensions, some two hundred cases. It was a clear case of water-borne disease. The original source of the infection has not been determined and probably never will be.

At several places on the shed there had been two or three gangs variously employed with obvious opportunities for pollution of neighboring streams. These gangs were shifting collections of men. In this particular instance some inquiry was made and two or three persons were found who admitted having had typhoid. These were all potential carriers and there may have been many more among those who denied any experience of the disease or could not be questioned. I cannot say that any of these men actually did infect the water supply of Shippensburg but the possibility is there and is a matter of frequent occurrence elsewhere. It is a question that ought to receive serious consideration from the authorities of municipalities who now jeer and sneer when the suggestion is made that the watersheds of their water supplies need protection of this kind. Here the rôle of the carrier promises to be of growing importance.

DISCUSSION

Dr. Alfred Stengel, Philadelphia: I would like to say a word with regard to the question of the treatment of carriers which is suggested by Dr. Dixon's communication, and particularly with regard to the use of kaolin in such treatment. The finely divided inert particles of kaolin by absorption fix the bacteria, or the bacteria adhere to the particles and are removed. This is a beautiful illustration of how lately physical chemistry has come into use in practical medicine. The credit of introduction of this medium in the treatment of infectious processes, not only medicinally but surgically, is due to the bacteriologists. In this particular case, as Dr. Dixon has indicated, a number of doses of kaolin were given. Six separate treatments of 60 grains each were given. That is a considerable dose to swallow and a very unpleasant one. This patient, a highly intelligent and willing subject, accomplished it without any difficulty. After giving the six doses negative cultures were obtained. Not satisfied, I suggested the giving of maximum injections of autogenous vaccine. From one billion to one and a half billion organisms were given at each dose. After she had had six negative cultures at reasonable intervals we felt that she was probably cured. I say probably, because one cannot say with certainty that the condition is cured, excepting after a series, perhaps a long series, of negative cultures. Three negative cultures of the stools required by some boards of health would not prove that the patient might not be a carrier though it would probably in the ordinary case prove that the organisms had been eliminated from the system.

Kaolin may also be used in cases of diphtheria carriers, either sprayed on the throat in powder or swabbed in a paste of thick consistency, and otherwise used frequently and abundantly. I have had personal experience with only one case, not a carrier, but a residual case. In this instance a child clinically well of diphtheria was kept in quarantine because positive cultures could still be obtained. After two or three weeks I suggested trying kaolin and in a short time the cultures were negative and the child was released from quarantine.

I would like to throw out the suggestion that possibly the value of our use of bismuth subnitrate, chalk mixture, and other inert substances in the treatment of gastro-intestinal disturbances may rest on the absorption of bacterial irritants rather than on the mechanical principle of coating the mucous membrane as we have commonly thought. I am not familiar with surgical procedures but I am told by my surgical friends that kaolin has been used in the local treatment of obstinate local infection, such as of sinuses, etc.,

CARRIERS IN SCHOOLS, WITH SPECIAL REFERENCE TO DIPHTHERIA *

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Discover the carrier and exclude him from school and one of the problems of school infection is solved. A carrier is a person who is the host of a disease-producing organism, an organism which he gives off in various excretions of the body. A carrier need not necessarily show clinical symptoms of the disease; in fact, a true carrier seldom shows any symptoms. A person having had a mild infection, which was not detected, who was not sick enough to be away from school, may also be considered a carrier. A carrier is most difficult to detect in every disease, except in diphtheria, because there is no test by which in the absence of clinical signs a diagnosis can be made. In patients recovering from the ordinary major contagions, excepting variola and varicella, when all skin or local manifestations have subsided the exhalations of coughing and sneezing contain the organism of causation. Infection is also thrown off by tears and discharges from the ears or nose. In most all major infections, excepting diphtheria, a careful examination and history of each returning absentee will in many cases be of value in ferreting out some unsuspected case. But even with the most careful supervision, because of the uncertainty of just where infection stops after recovery, there is no sign by which we can judge whether or not a person is no longer in the infective stage.

In scarlet fever, evidence of desquamation of the fingers or toes, or the bend of the knee or elbow, will in many cases be seen. Desquamation with a history of sore throat or vomiting, even though mild, should be suspicious enough to exclude such child from school, and this is done in such cases by the school medical inspectors in Pittsburgh. The fact that desquamation has ceased in scarlet fever is not always a sign that infection is no longer possible, and *vice versa,* the fact of desquamation existing, that infection is still active, but rather the condition of the glands and mucous membrane of the nose and throat and ear discharges are of greater value as a means for gauging the danger.

In measles, the greatest danger is in the early stages, when during the prevalence of this disease it is wise to exclude all pupils showing coryza symptoms for at least three days for observation. Measles is the hardest disease to control, because of the fact that contagion is due to the spreading of infection by coughing, sneezing and conjunctivitis before the disease has been detected in the one spreading it. To wait for clinical symptoms before exclusion of a suspect allows time for spread of infection, but the danger can be minimized in the presence of an epidemic by the exclusion for three days of any suspect, and subsequent examination before admission.

In mumps, the presence of enlarged or tender parotid, or submaxillary glands with history of swelling previously while absent, is cause enough to exclude such a child for a longer period.

In whooping cough, it is wise to exclude a child where coughing, not due to bronchial irritation or nose or throat conditions, is severe enough to suspect. Just when a child recovering from whooping cough is no longer infectious is difficult to determine by any practical means at our disposal, but for safety it is better to exclude until all paroxysmal coughing has ceased.

In all the major diseases mentioned it is evident that we have no clear or concise means whereby a carrier may be detected, but we must gauge the admission or the exclusion by the history and whatever evidence we can gather by observation, together with a measure of time for safety, and exclude on suspicion rather than to admit.

There is one disease, however, in which we have a sure index as to carrier possibilities, namely, diphtheria, because by throat or nose cultures the presence or absence of Klebs-Loeffler bacilli can be gauged. From my experience in this phase of work, I am of the firm opinion that diphtheria can be held to a minimum in the schools only by continued and repeated culture tests of all suspected cases. Every sore throat should be considered as suspicious until proved otherwise. Every child absent from school should pass the school medical inspector before admission, and where history or suspicion of any throat inflammation or tonsillar condition, or nasal irritation is given, a culture should be taken of the child's throat or nose, and the child excluded until report of the culture is received. In Pittsburgh, where cultures are taken in this manner, the child is excluded until 1 p. m. the following day, when, if positive, the school is notified before noon to re-exclude; if negative, the child is automatically

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admitted. All cultures taken are listed under one of the following captions:

1. Sore throat, which includes pharyngitis, laryngitis or tonsillitis.

2. Home contact, either of clinical diphtheria or diphtheria carrier.

3. School contact, cultures taken in event of a case developing in the schoolroom and where the onset has been within a week of the child's attendance at school.

4. Clinical cases (returning for admission). Clinical cases where patients have been released from quarantine and return for admission. These cases have had two negative cultures, one from the family physician and one from the Bureau of Infectious Disease physician. These positive cultures received do not reflect on the work done by the other physicians, but are due to conditions affecting the life of the Klebs-Loeffler bacillus; i. e., a child may be cultured by either family physician or Bureau of Infectious Disease physician while still using local treatment on the throat, and the surface will show negative. After release from quarantine, medication stops, and a positive culture will be received, because of a later development of the germs from the tonsillar crypts. It is of prime importance in culturing to press inward on the tonsil and swab well over the surface and in the folds or even in the crypts, because the germs have been found to habitate in these crypts. In fact, most all carriers have some pathological condition of throat or nose, usually enlarged or diseased tonsils.

5. Diphtheria carrier (returning for admission). In a tabulation of 47,951 cultures, taken in the last two years, some interesting facts are seen (Table 1). The greatest number of positives were found in the months of October and November, both years; during these months also diphtheria was mostly prevalent in both years. For this reason, intensive work in culturing is entered into immediately in September, and also because of the close association of large numbers of children after vacation, during which time no supervision is possible. It is also true that during these fall months there was a greater prevalence of sore throats, and in the two years' tabulation the majority of positives in sore throats were found from September to January (Table 2).

School contacts were cultured to the amount of 15,199 negatives and 240 positives, a total percentage of 1.6 per cent. The number of rooms cultured was 349. The greatest number of these cultures were made during the months of September, October and November of both years.

From a study of the figures of the cultures taken as school contacts, the conclusion is drawn that beginning on the first day of school extreme care should be taken in culturing every suspected case in the schoolroom. There have been many instances where children, contracting diphtheria, have been absent from school for a week before onset of the disease, and yet on culture of all in the schoolrooms they attended, after that lapse of time eight or nine positives were found in an average room of forty-five to sixty. Ordinarily, this large number does not hold; as a rule, the average is less than one per room cultured.

In culturing home contacts, there were 2,712 negatives and 97 positives, an average of 2.4 per cent. This percentage was more or less even for each of the years, and did not vary much in any particular month.

In cases listed as sore throat, there were 19,139 negative and 383 positive. The variation in school years 1914 and 1915 shows a marked difference. In the school year 1914 there were 2.6 per cent. of all sore throats cultured positive, while in 1915 the percentage was 1.28 per cent. with practically the same number of cultures each year and very slight variation in the rate per month. It seems that from sore throats we had a decrease in the prevalence of diphtheria carriers, in the two years, to just half the number in 1915 positive as in 1914. The average percentage of sore throats showing positive culture for the two years was 2 per cent.

In clinical diphtheria cases returned for admission, there were in 1914, 9.6 per cent. positive; in 1915, 4.8 per cent.; or a total percentage of 7.3 for the two years. Results of culturing returned clinical cases show that it is necessary to make repeated cultures in any case that has been found positive, and that it is the repeated negative cultures that are of value in ascertaining whether or not a case is any longer infectious.

Scarlet fever patients returning after quarantine were cultured for fifteen months, with only one positive out of 239 cases; after this result we discontinued this phase, as the length of time the patients are under quarantine would be long enough for any germs found present to have died out.

Diphtheria carriers, which have been found by any of the previous methods of culturing, returning after a lapse of one week's quarantine for reculturing, have been found positive on an average of 25 per cent. of cases; returning for

TABLE 1

Month	Total	Negative	Positive	1st	2d	3d	4th	5th	6th	7th	8th	9th	10th
1914													
Jan.	1,646	1,581	65	51	9	3	2						
Feb.	1,835	1,746	89	71	12	3	2	1					
March	1,428	1,350	78	53	13	7	2	1	2				
April	872	830	42	37	4	1							
May	1,766	1,687	79	49	12	9	8	1					
June	957	887	70	37	17	1	6	1	7	1			
Sept.	2,032	1,940	92	84	7	1							
Oct.	4,254	4,128	126	99	21	3	2	..	1				
Nov.	4,544	4,376	168	106	44	10	2	2	1	..	1	1	1
Dec.	2,041	1,962	79	54	13	7	2	2	1				
1915													
Jan.	1,808	1,751	57	34	16	5	2	1	1				
Feb.	1,470	1,440	30	23	7	1	..	..	..	1			
March	1,434	1,396	38	24	5	3	1	1	1	1	1	1	
April	946	937	9	5	2	1	1						
May	941	925	16	9	3	2	2						
June	643	631	12	9	3								
Sept.	1,637	1,590	47	44	3								
Oct.	3,254	3,171	83	53	20	7	3						
Nov.	4,250	4,119	131	94	22	10	1	1	1				
Dec.	2,566	2,527	39	22	7	2	3	1	1				
1916													
Jan.	2,420	2,392	28	22	6								
Feb.	1,658	1,644	14	9	3	2							
March	1,442	1,425	17	14	1	1	1						
April	838	820	18	15	1	1	1						
May	979	959	20	17	3								
June	290	285	5	4	..	1							
Grand total	47,951	46,499	1,452	1,039	254	81	41	12	16	3	2	2	1
1914 total	21,375	20,487	888	641	152	45	26	8	12	1	1	1	1
1915 total	18,949	18,487	462	317	88	31	13	4	4	2	1	1	
1916 total	7,627	7,525	102	81	14	5	2						
Percentage 1914			4.1	72.0	23.7	7.0	4.0	(Balance………24 7.5 %)					
Percentage 1915			2.43	68.5	27.7	9.7	4.0	(Balance………13 4.0 %)					
Percentage ½ of 1916			1.34	79.4	17.3	6.0	2.4	(No culture over 4th)					
Total			3.2	71.6	24.4	7.8	3.9	(Balance………37 5.7 %)					

TABLE 2

Year and Month	Rooms Cultured	School Contacts		Home Contacts		Sore Throat		Clinical Diphtheria		Carriers After 1st Culture		Total		Scarlet Fever	
		Negative	Positive	Negative	Positive	Negative	Positive	Negative	Positive	Negative	Positive	Negative	Positive	Negative	Positive
1914															
Sept.	25	1,317	27	130	5	517	41	8	2	16	12	1,988	87		
Oct.	57	2,325	43	302	13	1,468	74	50	7	116	41	4,265	178	4	
Nov.	42	1,862	38	282	9	2,153	56	70	10	155	61	4,528	174	6	
Dec.	14	488	12	165	9	1,284	33	48	6	69	28	2,056	88	2	
1915															
Jan.	10	384	6	227	6	1,020	14	85	6	31	25	1,751	57	4	
Feb.	12	449	3	149	4	747	10	43	5	26	8	1,440	30	26	
March	8	337	1	91	5	856	13	31	5	28	14	1,396	38	53	
April	3	123	0	74	1	637	2	34	1	8	4	937	9	61	1
May	5	221	1	41	0	598	7	21	1	8	7	925	16	36	
June	8	302	1	27	0	266	8	13	0	11	3	631	12	12	
Total	184	7,808	132	1,488	52	9,546	258	403	43	468	203	19,917	689	204	1
Sept.	27	1,196	31	49	3	306	9	24	1	12	3	1,590	47	3	
Oct.	36	1,625	15	183	8	1,242	30	46	1	58	29	3,171	83	17	
Nov.	40	1,804	36	317	11	1,807	39	86	9	90	36	4,119	131	15	
Dec.	17	840	6	168	8	1,429	8	46	2	44	15	2,527	39		
1916															
Jan.	10	425	2	185	6	1,677	11	72	3	30	6	2,389	28		
Feb.	14	543	2	95	3	967	3	28	1	11	5	1,644	14		
March	9	365	1	81	3	933	8	32	2	14	3	1,425	17		
April	5	228	5	59	1	499	9	23	0	11	3	820	18		
May	6	331	10	76	2	514	4	19	1	15	3	955	19		
June	1	34	0	11	0	219	4	19	0	2	0	285	5		
Total	165	7,391	108	1,224	45	9,593	125	395	20	287	103	18,925	401	35	
Two years total	349	15,199	240	2,712	97	19,139	383	798	63	755	306	38,842	1,090	239	1
Total cultures		15,439		2,809		19,522		861		1,061		39,932			
1914, %		1.66		3.37		2.63		9.6		30.0		3.34			
1915, %		1.44		3.54		1.28		4.8		26.4		2.00			
Total		1.65		3.4		2.00		7.3		28.8		2.7			

third culture, found positive in 7.8 per cent.; returning for fourth culture, 3.9 per cent.; and 5.7 per cent. returning at subsequent times, which in some cases was as high as the tenth culture. We have a number of cases on record lasting as high as thirteen weeks. The life of a diphtheria carrier, according to our records, has been found to be on an average of ten to fourteen days in 75 per cent. of the cases. The question may arise as to the infectiousness of these carriers found. We have, to date, no statistical study of cases following carriers except in general terms, approximately 5 per cent. of carriers develop clinical diphtheria themselves, while a large number, just how large I cannot state, when excluded from school as a carrier, have been shown to be the cause of diphtheria in their families, with no other direct possibility found as the source of infection. I have repeatedly seen cases where children sent home as carriers were later reported by the family physician as clinical diphtheria after a few days.

In many of the sore throats cultured and found to be positive, especially in those cases which have been absent and are returning, there is strong presumptive evidence that these have been mild unrecognized cases of diphtheria. The fact that a child is a carrier and is not severely ill does not conclude that the invading germ is not infectious on some other soil. It is presumably true that a carrier of long standing has a certain amount of antitoxin manufactured in its system for which reason it may not develop clinical diphtheria at that time. Antitoxin has no effect on the life of diphtheria bacillus, as far as we can see, and will not reduce its infective possibilities on any other soil; I mean by that, that any child found to be a carrier should be given antitoxin, but the giving of antitoxin to the child does not lessen the danger to any other child with whom it comes in contact. A wise procedure is to give antitoxin to contacts in all cases. Having had no personal experience in the use of the Schick test for carriers, I will not discuss its use. In the treatment of diphtheria carriers, there have been many measures tried in the way of medication, but they are all good only for surface action. In those cases in which the tonsils are the habitat of the germs, apparently deep in the crypts, the only safe procedure is enucleation of the tonsils. We have on record a number of such cases in which, after the removal of the tonsils, the germs were no longer found.

In culturing a room, it is wise not to forget that the teacher or janitor, and even possibly the medical inspector, may be the source of infection. All absentees of that day should be cultured before being admitted, as the very one or ones absent may be positive.

In conclusion, I wish to point out a few salient facts:

1. Exclude every patient as suspicious of any disease until sure of no danger.
2. There is no test for any carrier except in diphtheria.
3. Hold every sore throat as suspicious until proved otherwise.
4. Repeated cultures are the safeguard in diphtheria.
5. Diphtheria carriers will produce diphtheria.
6. All contacts of diphtheria or diphtheria carriers should be kept under observation, and also all returning patients released from quarantine.

There is much yet to learn about the carrier question, and it is our intention to go deeper into the subject in the coming school year.

Culturing should be done carefully, so as to get the swab over the surface of the part suspected; tongue depressor and light should be used. Culture tubes are left at collecting stations and are sent to laboratory on same day. In room culture, use media which have been sent to the school designated. At least twelve hours are needed for incubation. Negative findings may be misleading, but positive should not be. Undeveloped cases on further growth often show positive. Advocate among physicians more of the practice of culturing all sore throats. In Pittsburgh we placard for carriers.

403 Nixon Building.

DISCUSSION

Dr. B. Franklin Royer, Harrisburg: The city of Pittsburgh was fortunate in that it started its school medical inspection system after similar systems had been organized in other large American cities. Pittsburgh began by incorporating all the good points of the various systems then in vogue in Philadelphia, Boston and New York. The scheme is well worthy careful study by any of you actively engaged in school medical supervision.

I want to reenforce two or three points made by Dr. Benz in his splendid paper. From the purely clinical standpoint, what observations would lead you to suspect a case of being a diphtheria carrier or a scarlet fever carrier? Why do health authorities in many sections of the country do as does the department of health of this commonwealth; viz., require a certificate by the physician that discharges from the nose and the ears have ceased in diphtheria and in the acute eruptive diseases?

Dr. Benz has well pointed out that carriers of these diseases are usually chronic nasal carriers or chronic tonsillar carriers. He might well have pointed out that the child recovering from scarlet fever and having a nasal discharge causing excoriation of the lip is apt to be a carrier of scarlet fever infection or of diphtheria infection or both. Public health authorities are not nearly as much concerned about late desquamation of the skin in scarlet fever as they are about chronic discharges from nose and ears. It is a practical point that many domestic soaps used freely on the "new skin" after the preliminary shedding in scarlet fever are sufficiently irritating to cause further flaking of the skin and to cause flaking to continue over a period of weeks while the soap is being used and until the "new skin" has become accustomed to its use.

I doubt if the attention of the profession has been sufficiently called to this point. A late shedding of skin, say thirty days after the onset of scarlet fever, is perhaps not dangerous. Any of you having had extensive experience with scarlet fever have seen the skin flake off thirty-five and forty days after onset of the disease and as a rule health authorities require the keeping of such children under quarantine and refuse to readmit such a child to school. Perhaps the provision is a wise one. Yet the child having a chronic nasal discharge thirty days after either scarlet fever or diphtheria is a very much more dangerous youngster to admit to school.

Cameron's work in following up children discharged from the hospitals of the Metropolitan Asylums Board of London demonstrated pretty conclusively that it is the case with running ears or a discharging nose instead of the long continued desquamation of the skin that caused the secondary cases in the home after the child returned. Similar observations were made by me at the Municipal Hospital in Philadelphia and have since been carried out very much more extensively by Dr. Woody and Dr. Cairns.

Practically all cases of children going home from the school in Philadelphia that have been responsible for secondary cases in the home have been either cases having long continued oral or nasal discharges in the hospital or were cases that developed a relapsing condition of these members shortly after release.

What I should like to urge on you as medical men is never to release from quarantine children having discharging ears or a running nose during convalescence from diphtheria or scarlet fever until they have been carefully studied. In second class townships throughout the commonwealth our custom is to have the department's county medical inspector see such cases with the attending physician and not to release a patient having these conditions continuing an unduly long time until agreement may be made for satisfactory supervision and proper care.

There comes a period when a child with a discharging ear must be released. The ear may discharge for life. We never release until at least six weeks after onset and the county medical inspector with the family doctor agree on some form of antiseptic to be used for irrigation, and trains the family thoroughly in collecting the discharges and burning them and disinfecting the hands of the person taking care of them. With the diphtheria carriers, cultures may determine when the child is no longer a menace. Cultures may have to be tested for virulence at times by inoculating guinea-pigs.

THE SIGNIFICANCE OF HUNGER PAIN: A REVIEW OF THE LITERATURE *

JOHN W. LUTHER, M.D.
PALMERTON

The expression "hunger pain" seems to have originated with Moynihan, and to him we are indebted for the first detailed and accurate description of this important, greatly discussed and many times misinterpreted symptom.

Abercrombee,[1] in 1830, however, was the first to mention it. This he did in such an interesting way as to be worthy of full quotation, even though, in the light of our more modern knowledge, he may not be entirely correct. He wrote: "The leading peculiarity of disease of the duodenum, as far as we are at present acquainted with it, seems to be that the food is taken with relish and the first stage of digestion is not impeded, but that the pain begins about the time when the food is passing out of the stomach, or from two to four hours after a meal."

The pain usually is first felt at varying lengths of time after the heaviest meal of the day. The exact hour of the onset is often peculiar to the individual and is fairly constant. Later in the attack or in subsequent attacks this pain is felt at its characteristic time after every meal, being usually more severe, however, after the heaviest meal of the day. It almost invariably occurs at night, waking the patient out of a sound sleep at a regular hour.

It is frequently preceded or accompanied by a sensation of weight, fulness or distention in the epigastrium and may be temporarily relieved by the raising of gas, giving rise to the voluntary effort on the part of the patient to eructate. With this eructation of small volumes of gas there may be a slight regurgitation of a bitter or acid fluid, which leaves the throat dry and the teeth chalky and gritty.

During the development of the pain, Moynihan[2] states there is frequently a free gush of saliva, the swallowing of which may momentarily give relief. Pressure sometimes gives partial relief and patients not infrequently awaken to find that they have subconsciously pressed a pillow into the epigastrium.

The pain is variously described as "cramplike," "boring," "drawing," "burning," "gnawing," "neuralgic," "an intense hunger amounting

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* Read at the General Meeting of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 20, 1916.

[1] Lockwood: Diseases of the Stomach, Philadelphia, 1913.

[2] Moynihan: The Diagnosis and Treatment of Duodenal Ulcer, The Lancet, Jan. 1, 1910, p. 20.

to an actual ache," "an all gone sensation," "sinking at the pit of the stomach" or a feeling of a painful lump or pressure. It may be so severe at times as to resemble biliary colic.[3] Its times of onset varies considerably in different individuals from one half to four or five hours.

Lockwood[1] claims that in acute cases pain may occur within fifteen to twenty minutes after food ingestion or it may be delayed until one or two hours, while the Fenwicks[4] state that in chronic cases during the early stages and often throughout the entire course, the pain begins from five to twenty minutes after food intake and increases in intensity until it reaches a maximum in about two hours and then gradually decreases and disappears at the end of gastric digestion. This is evidently not the hunger pain of other authors.

Westphal and Katch[5] and Lockwood[1] distinguish two kinds of pain. The genuine "hunger pain" occurring almost always at night, at times during the day, from one to six hours after eating, when the chyme is passing over the ulcer, and the pain of stomach emptying starting one and one-half to three hours after eating, reaching its greatest intensity three, four or five hours later and continuing until the stomach is empty, either normally or by emesis. The night pain is accompanied by hunger, the pain of stomach emptying is not, and is frequently aggravated by eating. In these latter cases Lockwood says there is pylorospasm with food retention and hypersecretion and it is the hypersecretion that causes the pain. These are evidently cases of beginning stenosis.

The location of the pain is in the epigastrium though in severe cases it may extend through to the back or pass around the right side. Westphal and Katch[5] are more explicit in locating it in an exactly circumscribed area about three finger-breadths above the umbilicus, somewhat to the right of the median line, very near the duodenal painful pressure point. At intervals shooting pains radiate backward to the spinal column, but never to the shoulder. The pains of stomach emptying are at about a level with the umbilicus and cause a sensation of cramp and drawing together at a site between the left costal margin and the location of the pylorus.

As the above description suggests, the literature fairly reeks with expressions of opinion as to the character of the pain, its cause and significance. True hunger pain, however, as originally described, is always late in onset, the time being peculiar to the individual, located in the epigastrium, burning, at times, cramp-like in character and associated frequently with a desire for food and relieved by the ingestion of food, drink or alkalies. Patients early acquire a disposition to refrain from heavy or indigestible articles of diet, realizing that they increase the intensity of the pain. The lighter and liquid diets are frequently responsible for an earlier but less severe attack. The taking of food to bed to relieve the night pain is an early acquired custom.

Authorities on the subject might be divided into two schools; those who do and those who do not believe this symptom to be pathognomonic of gastric or duodenal ulcer. The former school is represented by such men as Moynihan,[2] Barth,[6] Kemp,[7] Lockwood,[1] Riegel,[8] Mayo,[9] Codman,[10] Mackenzie.[11] These authorities explain the cause of the pain and of its cessation upon different grounds.

Lockwood and Mills[12] believe the pain to be due to the passage over the ulcer of the acid chyme as it leaves the stomach. Hertz has demonstrated with the Roentgen ray, however, that food leaves the stomach almost immediately after its ingestion. Moynihan is, therefore, of the opinion that the chyme in the later stages of digestion has a greater acrimony and that this probably produces an alteration in the muscular activity of the stomach and doudenum. Ewald[13] criticizes Hertz for not believing that gastric hyperacidity causes the pain because he failed to produce it in ulcer cases by administering 0.5 per cent. solution of hydrochloric acid, when gastric juice is four times this strength, and Talma[14] elicited it by giving half a liter of 1 to 750 HCl.

In this connection it might be of interest to note Rodari's[15] experience with Bönninger's test which he used to distinguish between gastric and duodenal ulcer. This consists in the administration of 100 to 200 c.c. of a decinormal HCl. solution. In patients with gastric ulcer this usually causes immediate intense pain relieved by milk. If no pain develops the epigastrium is massaged to bring the acid in contact with the entire gastric mucosa. If pain is still absent true gastric ulcer does not exist. In patients with duodenal ulcer there was no pain but severe discomfort about one hour later.

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[3] W. Soltan Fenwick: Dyspepsia, Its Varieties and Treatment, Philadelphia and London, 1910, p. 63.

[4] Samuel and W. Soltan Fenwick: Ulcer of the Stomach and Duodenum and Its Consequences, Philadelphia, 1900, p. 184.

[5] Westphal and Katch: Das Neurotische Ulcus Duodeni. Mitteilungen aus den Grenzgebieten der Medizin und Chirurgie, Vol. 26, 1913, p. 391 431.

[6] Barth: Ueber das Duodenalgeschwür, Zeitschrift f. Aerztliche Fortbildung, Jan. 15, 1908, Vol. 5, No. 2, p. 33.

[7] Kemp: Diseases of the Stomach, Intestines and Pancreas, Phila. and London, 1912, p. 666.

[8] Riegel: Die Erkrankung des Magens, Wien, 1903, Bd. 11, p. 385.

[9] W. J. Mayo: Collected Papers by the Staff of St. Mary's Hospital, 1910.

[10] E. A. Codman: The Diagnosis of Ulcer of the Duodenum, Boston Medical and Surgical Jour., Vol. 161, 1909, p. 767.

[11] Mackenzie: Symptoms and Their Interpretation, London, 1909, p. 133.

[12] R.. W. Mills: Observations on Duodenal Ulcer with Special Reference to its X-Ray Diagnosis, Interstate M. J., 1915, xxiii, 68; Abst., Surg., Gyn. and Obstet., September, 1916, p. 254.

[13] C. A. Ewald: Diagnose und Behandlung des Ulcus Oesophagi pepticum und Ulcus duodenale, Berlin klin. Wchnschr., No. 5, Jan. 31, 1910, pp. 179-186.

[14] Talma: Ztschr. f. klin. Med., Bd. 8, p. 414.

[15] Rodari: Lehrbuch der Magen und Darmkrankheiten, Weisbaden, 1910.

Barth[6] points out the absence of sensory nerve fibers in the stomach and duodenum and attributes the pain to traction, during activity, on surrounding parts probably inflamed. Kemp[7] is of the same opinion as Moynihan and calls attention to Cannon's observation, that the motor waves in the gastric fundus are slight and he believes that a considerable portion of solid food remains here at least an hour after ingestion during which time ptyalin digestion proceeds, the more liquid food passing outward along the lesser curvature greatly diluting the acid.

C. Mansell Moullin[16] opposes the theory of the pain being caused by acid contact with an ulcer, on the ground that latent ulcers, between symptomatic attacks, are bathed in acid secretions. He disagrees with Ewald, Talma and Rodari in claiming that patients with proved ulcers may swallow acid of far greater strength than that secreted by the stomach without unpleasant effects. Pylorospasm provoked by chyme passage over a hypersensitive pyloric mucous membrane with or without ulcer, he believes to be the cause. Hyperesthesia sets up spasm, the spasm increases hyperesthesia, resulting in a vicious circle. In this opinion Glaessner and Kreuzfuchs[17] concur, adding that the spasm depends upon the relative gastric acidity and duodenal alkalinity. The greater the disproportion, the greater the spasm.

Kümmel[18] in 1914 reported that in only 3 per cent. of 400 patients operated upon by Moynihan was there absence of hunger pain or a faulty diagnosis because of its presence. Moynihan[19] himself even goes so far as to claim that when the pain is delayed to three or four hours after food he has found the ulcer "tucked back," that is, adherent posteriorly in such a manner as to prevent its delivery into the abdominal incision. When the pain consistently comes at an earlier time than two hours after food, two conditions may be found: either an active ulcer has contracted recent adhesions to the abdominal wall or the liver, or stenosis is beginning to develop.

Riegel[8] claims hunger pain points to ulcer in the duodenum or in the neighborhood of the pylorus. W. J. Mayo[9] stated in 1910 that hunger pain in the majority of instances means ulcer, and later, in 1915,[19a] writes, "The symptomatology of duodenal ulcer is so well known that in the typical cases failure of diagnosis should not occur. The hunger pain and food relief, hyperacidity and hypersecretion and, in the later stages, obstructive phenomena, leave little doubt as to the character of the lesion."

Pierre Caille,[20] in attempting to explain the discrepancy between the French and Anglo-American views as to what constitutes a duodenal ulcer states that the latter understand it to be that which the French have called "ulcus juxtapylorique" or Reichman's disease, characterized by late pains, presence of liquid in the stomach after fasting, and hypersecretion of HCl. There is, however, a true duodenal ulcer which is 2 to 4 centimeters away from the pylorus. When this ulcer is old, the pains are irregular and less assuaged by the taking of food or alkalies than are those of juxtapyloric ulcer and may even be aggravated by food.

Codman[10] states that chronic cases where the patients complain of hunger pain and are subject to recurring attacks of temporary interference with the pylorus should be considered cases of duodenal ulcer. Mackenzie[11] claims that "the relation of the pain to the ingestion of food is very variable. In some the taking of food causes immediate pain or it may come on at variable intervals after food. When it comes on two or three hours after food, relief may sometimes be obtained by taking more food. No very certain conclusions can be drawn from this relation of pain to the ingestion of food. Attempts have been made to diagnose the position of an ulcer from this relationship but there is no ground for such a diagnosis. As a matter of experience, the pain in gastric ulcer may come on at any period, whatever its situation."

Smithies,[21] in a study of 500 operatively demonstrated cases, found that irrespective of the location of the ulcer, nearly 80 per cent. had distress within four hours after eating; nearly 50 per cent. within three hours; more than

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[16] C. Mansell Moullin: The Significance of the Symptoms in Cases of Duodenal Ulcer, Lancet, Mar. 2, 1912, p. 563-566.

[17] Glaessner and Kreuzfuchs: Ueber den Pylorospasmus, München. med. Wchnschr., No. 11, March 18, 1913, p. 582.

[18] Kümmel: Zur Pathologie und Chirurgie des Ulcus duodeni, Deutsch. Med. Wchnschr., No. 23, i, June 4, 1914.

[19] Moynihan: Duodenal Ulcer, 2nd Ed., p. 108.

[19a] W. J. Mayo: Chronic Duodenal Ulcer, Collected Papers of the Mayo Clinic, 1915.

[20] Pierre Caille: What Do We Mean by Ulcer of the Duodenum? Arch. des Mal. de l'appareil digestif. 5, 1911, pp. 169-193.

[21] Frank Smithies: On Diagnosis and Prognosis in Gastric Ulcer; A Clinical Study of 500 Consecutive Operatively Demonstrated Cases, Preliminary Report, Interstate Med. Jour., 22, 1915, p. 207.

44 per cent. of lesser curve ulcers one to three hours. Nearly two thirds of the ulcers located near the cardia have maximum distress within two hours, and two out of five within one hour of food intake. Food relief is practically pathognomonic in three out of five cases of uncomplicated peptic ulcer.

S. Kemp[22] believes hypersecretion suggests ulcer either of the stomach or duodenum, the latter especially when it is excessive. Pylorospasm is frequent with duodenal ulcer and gastric motor insufficiency is the rule. He found hypersecretion with motor insufficiency also in advanced cases with stenosis. Mathieu, A.,[23] thinks hunger pains point especially to an ulcer of the pyloric or prepyloric region or to an ulcer just beyond the pyloric ring. They are not characteristic of duodenal ulcer.

The other school differs from those quoted in believing that hunger pain is an indication of another condition which may or may not be associated with a pyloric or duodenal ulcer.

Soupault[24] believes late pains to be due to an obstacle to the evacuation of the stomach at the pylorus, either functional or organic, but always associated with pylorospasm brought about by contact of acid chyme. He sees in the fact that gastro-enterostomy relieves these conditions, an indication of the involvement of the pylorus or duodenum. He includes the phenomena in his "syndrome pylorique." The resistance to the passage of chyme due to the spasm of the pylorus is increased by an intraduodenal pressure. The condition he considers one of hyperesthesia subject to such affections as ulcer, cancer and adhesions, but may have a purely vasomotor or nervous origin.

Günzburg[25] does not consider hunger pain characteristic of ulcer. The symptom complex of arteriosclerosis may include it.

Westphal and Katch[5] endeavored to determine the cause of hunger pain by fluoroscoping patients during an attack. They found that three factors are concerned: (1) marked secretion, that is, disordered or "para secretion"; (2) marked dilatation of the stomach; (3) closed pylorus. Pain disappears as soon as the pylorus opens. The spasm is probably produced by an increase in free HCl. They could not determine whether the pain was caused by the spasm or the presence of the ulcer; but favor the former as the pain disappeared when the pylorus opened, it could appear when no ulcer was present, it could be alleviated by injections of atropin and adrenalin and in one case it could be produced by inducing pylorospasm. Friedman[26] claims that late pains indicate an increase in intragastric pressure or pylorospasm, of which the most frequent cause is hyperacidity. Fenwick[3] states that the pain of duodenal ulcer is similar to that of hyperacidity which causes pylorospasm. The pain is merely symptomatic of hypersecretion of which ulcer is a common but by no means the sole cause. He has observed hunger pain in ulcer of the cardia and center as well as close to the pylorus and also in gallstones and ulceration of the appendix. It is, however, more severe in pyloric ulcer. Hutchinson[27] and Ewald[13] think hunger pain an indication of hyperchlorhydria, the latter considers it also an expression of pylorospasm of gastric neurosis. Albee[28] claims these pains may occur in hyperchlorhydria due to alcohol and tobacco, though they are not so severe as those seen in ulcer.

S. K. Kemp[29] considers the only diagnostic value of hunger pain is to attract our attention to the possibility of a duodenal ulcer. Fifty per cent. of his cases showed pylorospasm. He reports fifty-nine cases of gastric ulcer, of which only twenty-two had the pronounced "syndrome pylorique" of French authors. Of these, eighteen had ulcer near the pylorus, eleven with stenosis. He disagrees with Ewald in believing it a symptom of hyperchlorhydria.

Peck[30] in an analysis of 120 operatively demonstrated cases of duodenal ulcer found that only 50 per cent. had typical hunger pain. Melchoir[31] in a collective review of statistics from many sources shows that hunger pain is by no means a regular symptom of ulcer. It is very commonly absent and with Blad[32] has seen it occur in such diseases as ulcer, cholelithiasis and chronic appendicitis. Dünkeloh[33] states that most German authorities assert that hunger pain may be found in ulcer and carcinoma of the stomach and in all kinds of inflammatory adhesions of the pylorus, duodenum and gallbladder, while Jones[34] adds materially to this list and further depreciated from the value of hunger pain as an aid in diagnosis by claiming it may be found in achylia gastrica, chronic gastritis, acid gastritis (especially the stenosing gastritis of Boas), gastrectasis, various ptoses and inflammation of the gallbladder and appendix.

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[22] S. Kemp: Ugeskrift for Laeger, Copenhagen, Dec. 15, 1910, 1, xxii, No. 49 and 55.

[23] A. Mathieu: Traite Mèdico, Chirurgical des Maladies de l'Estomac et de l'Oesophague, p. 516.

[24] Soupault: Traite des Maladies de l'Estomac, Paris, 1906.

[25] Günzburg: Zur Diagnose der Duodenalgeschwür, Deutsch. Med. Wchnschr., No. 28, July 14, 1910, p. 1318.

[26] J. C. Friedman: Time Relations of Gastric Pains with Special Reference to Gastric Adhesions, Am. Jr. Med. Sc., 1916, cli, 735; Abst., Surg., Gyn. and Obstet., September, 1916, p. 249.

[27] R. Hutchinson: Lancet, Jan. 15, 1910, p. 169.

[28] A. Albee: Zur Diagnose und Therapie des Ulcus duodeni, Die Therapie der Gegenwart, June, 1912, pp. 241-244.

[29] S. K. Kemp: Ueber die Diagnose und Behandlung des nicht perforierten Duodenalgeschwürs, Ztschr. f. klin. Med., Bd. 72, 1911, pp. 519-544.

[30] C. H. Peck: Gastric and Duodenal Ulcer, A Review of 120 Cases Operated upon at the Roosevelt Hospital by the Surgical Staff during the past Five Years, Med. and Surg. Rep. of the Roosevelt Hospital, N. Y., 1915, pp. 17-28.

[31] Edward Melchior: Zur Statistik des peptischen Duodenalgeschwürs, Med. Klin., 1913, No. 35, Aug. 31, pp. 1408-1409.

[32] Blad: Das chronische Duodenalgeschwür, Arch. f. klin. Chir., Bd. 2, September, 1912.

[33] Dünkeloh: Das Ulcus duodeni, Mitteilung aus den Grenzgebieten der Med. und Chir., Vol. 27, 1914.

Aaron[35] states that hunger pain is a symptom of pylorospasm which occurs in many conditions and which in consequence "does not possess the certain diagnostic value which many would have us believe."

Many authors who need not be quoted have seen cases of hunger pain when ulcer could not be demonstrated.

From this review it will be seen that we have four theories to deal with:

1. That the pain is indicative of ulcer in the neighborhood of the pylorus and that it is caused by acid contact. This can be discarded if Barth's statement that the gastric and duodenal mucosa contain no sensory nerve fibers is correct and also upon the ground that the ulcer is many times bathed in an acid solution when pain does not exist.

2. That the pain is indicative of ulcer and that it is caused by spasm of the pylorus induced by hyperacidity, hypersecretion, or both.

3. That the pain is indicative of ulcer and is caused by peristalsis without spasm. Both of these, I think, can be eliminated because of the fact that the symptom has been repeatedly observed in cases that have been operatively demonstrated to be free from ulcers. This also disproves the first theory. In my limited experience I have seen patients that have complained of severe typical hunger pain, having a marked hyperchlorhydria, relieved by the administration of large doses of alkalies and rest. One case I have in mind occurred during the early months of pregnancy. The patient suffered two weeks before reporting, was entirely and promptly relieved by alkalies and has had no recurrence in about a year. Though not operatively proven I am thoroughly convinced this patient had no ulcer. I am then inclined to agree with Einhorn,[36] who states that Moynihan's symptom complex may occur with or without ulcer, and thereby favor the following theory:

4. That hunger pain is caused by a spasm of the pylorus induced by hyperchlorhydria which is often associated with hypersecretion and which may and in a large percentage of cases is complicated by a juxtapyloric ulcer. The causes of hypersecretion and hyperchlorhydria are too numerous to mention, nor do they directly apply to this paper.

When "hunger pain and food relief" occur with a painful pressure point and occult or microscopic blood in the feces, the roentgenologic examination shows gastric hypermobility and a shortened duodenal cap and possibly also, when Einhorn's string test, if used, is positive, a diagnosis of duodenal ulcer may be made, though many authorities claim that even then it cannot be accurate and that a diagnosis of the position of the ulcer by the lateness of the onset of pain is impossible.

DISCUSSION

DR. J. B. MCALISTER, Harrisburg: As hunger pain is most commonly encountered in cases of duodenal ulcer it is a most valued symptom in the diagnosis of that disease. Yet pain which closely resembles it is often present when a patient is suffering from other affections. Hunger pain begins usually two hours after the heaviest meal of the day. The time of its appearance varies with the character of food eaten. It is felt less than two hours after a light meal or later than two hours after a heavy one. If the stomach remains empty for several hours the pain is absent, or if present is relieved immediately by taking food, even in the smallest possible quantity.

Hunger pain is not an accompaniment of any definite chemical state of the stomach. As a rule, hyperacidity is high, but even low degrees have been found. Hunger pain may be a symptom of acid gastritis and is also found in catarrhal gastritis; also present in gastroptosis, enteroptosis or nephroptosis. In hyperorexia, or parorexia, the sensation of hunger might become so intense as to amount to actual pain. Late postprandial gastric suffering results from a variety of chemical and nervous diseases of the stomach, but is found in cases with diseases of other abdominal organs. Most common among these were pathological conditions of the gallbladder and appendicitis. In treating the symptom hunger pain, one should be guided by consideration of its cause rather than its effect.

Under the general term "dyspepsia," textbooks tell about acid gastritis, acid dyspepsia, hyperchlorhydria, flatulent dyspepsia and nervous dyspepsia as entities. Most such conditions are caused by gallstones, appendicitis, peritoneal adhesions, pelvic infection, ileocolitis and intestinal tumors, and the stomach is trying to tell about a pathological condition somewhere else. Hyperchlorhydria is only a symptom, an increase in the secretion of hydrochloric acid, usually with no structural lesion of the stomach. The average gastric analysis reveals the condition of hyperchlorhydria in the majority of all chronic stomach diseases. Physiologists now tell us normal gastric juice always contains hydrochloric acid to the extent of five per thousand.

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[34] Allen A. Jones: Hunger Pain, J. A. M. A., Vol. lix, No. 13, Sept. 28, 1912.

[35] C. D. Aaron: Diseases of the Digestive Organs, Lea and Febiger, 1915.

[36] Max Einhorn: Die Diagnose und Behandlung von Magen und Duodenalgeschwür, Arch. f. Verdauungskrankh., 20, 1914, pp. 543-551.

Pain closely resembling hunger pain is often met with in cases where the patient is suffering from appendicitis, especially cases of chronic appendicitis and in diseases of the gallbladder. Such patients, however, as a rule, are never absolutely free from symptoms of indigestion. On the other hand, the two conditions may be associated. Some believe that infection of the appendix, biliary passage and pancreas not infrequently precedes duodenal ulcer. Patients rarely vomit but do belch a great deal. This is forced, as it affords temporary relief. Sour eructations are common features of duodenal ulcer and patients suffering from this disease do not present the appearance of suffering from chronic dyspepsia. They look well in most cases and during the intervals of attacks are completely free from disagreeable symptoms.

Acute ulcer of the stomach and duodenum may be toxemic, caused by septic foci in other parts of the body, and unless it be for perforation is never a surgical case. Hematemesis (with no characteristic symptoms of long standing) is not surgical for it may be profuse or fatal when no ulcer can be seen and vomiting of much blood is not an unusual symptom of cirrhosis of the liver and enlargement of the spleen, and hemic conditions, and may be caused by acute or chronic appendicitis. Appendicitis has a causal relation to etiology of gastric erosion, or acute or chronic ulcer is evidenced by frequent associations of these conditions and their appearance often antedates the stomach trouble. Every surgeon has observed frequent occasions when a patient's dyspepsia was cured on removal of his appendix.

In differentiating ulcer from cholelithiasis it is well to remember that cholelithiasis frequently masquerades. Pain is confined to the epigastrium and differs in no respect, so far as location goes, from the pain resultant from gastric ulcer or nervous gastralgia. The jaundice, too, regarded as a cardinal symptom is often absent. The absence of food findings in the fasting stomach and the excess of digestive secretions points to a cholelithiasis, and excludes a lesion of the stomach. In a case of cholelithiasis simulating duodenal ulcer the crucial point is the presence or absence of excessive digestive secretions and of microscopic retention in the fasting stomach. The absence of excessive digestive secretions and of signs of stagnation should warn against the diagnosis for ulcer.

Physicians are warned against making a diagnosis of gastric neurosis because a patient happens to be a neurasthenic. The patient may present the appearance and symptoms of a neurasthenic and yet harbor a gastric ulcer or carcinoma. A further factor which misleads is the negative result of examination. Even when results of all examinations are negative, we should accept the diagnosis of gastric neurosis only after a good deal of mental reservation. Many ulcers and cancer cases are strongly diagnosed as gastric neurosis. Hunger pain in addition to its appearance in such a variety of affections, thereby making their diagnosis more complex and difficult, appears in cases of diaphragmatic hernia. A man who fell from a scaffold was subsequently afflicted with severe hunger pain, but which was greatly aggravated by the taking of food. As pain in his chest increased, his appetite continued good, but on account of these pains the patient was afraid to take food. There was much tenderness in the region of his gallbladder and over the epigastrium and an operation afterward revealed the cause of his suffering. I found it impossible to discuss "hunger pain" without giving much attention to ulcers of which it is so prominently a symptom.

Dr. J. A. Lichty, Pittsburgh: Dr. Luther has brought before us the important symptom of hunger pain. While we do not agree with Sir Berkeley Moynihan's former interpretation of this symptom, I think after all we are greatly indebted to him for focusing our attention on this symptom and for getting us to crystallize our opinions. In fact the description of gastric symptoms before this very definite description of Sir Berkeley Moynihan's was hazy, we spoke of "chronic gastritis," "catarrh," etc., and we had rather a confused nomenclature and a hazy idea. The description of this one symptom, hunger pain, has been so definite that it has led us to elicit from our patients more definite symptoms, relating to the digestive system than heretofore. I agree fully that the etiological interpretation Dr. Luther gives is probably the correct one; that is, that hunger pain is due to pylorospasm. There is one point on pylorospasm on which I do not believe I could agree with Dr. Luther, and that is that it is always due to a hyperchlorhydria. Pylorospasm can be caused by other conditions than hyperchlorhydria. Since I have used the Rehfus tube I have been able to speak more definitely about the secretions of the stomach and have found several cases with a definite hunger pain and with a low gastric secretion. There must be some patients who have hunger pains and yet do not have hyperchlorhydria. We can conceive that adhesions from the gallbladder could interfere with the functions of the duodenum and could give hunger pains; also chronic disease of the appendix. I think, therefore, Moynihan's expression some ten years ago that hunger pain is duodenal ulcer, can certainly not be substantiated. Gallbladder trouble and appendix trouble may produce a pylorospasm as easily as a gastric or duodenal ulcer and I think therefore that the interpretation, the proper interpretation of this one symptom, hunger pain, is a long step ahead in the understanding, the interpretation and the treatment of diseases of the gastro-intestinal tract.

Dr. Ernest Laplace, Philadelphia: It is conceded that the pain described as hunger pain is due to the spasmodic contraction of the pylorus. There is an intimate nervous connection, cerebrospinal and sympathetic, of the nerves supplying the stomach. Surgically speaking I have seldom failed to find some sort of lesion in the stomach when hunger pain has persisted. It may be transitory, due to a local disturbance, causing hyperchlorhydria, but the hunger pain that persists in spite of local treatment may be due to reflex action from some material change within the abdominal cavity which can be discovered only by surgical intervention.

Dr. Herbert B. Gibby, Wilkes-Barre: There is no doubt that the most prominent symptom in ulcer is hunger pain. I cannot agree with most of the former speakers that pains of this character necessarily mean a duodenal ulcer. It may mean also a gastric ulcer. Within the last month I removed a large ulcer from the center of the posterior wall of the stomach which produced the most intense pain, in fact, so severe that the patient required morphin for its relief. I have another case in which the ulcer which I removed was located almost at the cardia, and this also had as a prominent symptom hunger pain. This pain is a definite one. In my experience I have never had any trouble in differentiating it from appendiceal pain or gallbladder pain. It has its own characteristics and it is indicative of ulcer. The patient comes complaining of a symptom, and he complains of it so definitely and gives such a characteristic description of it, that there is very little doubt that there is an ulcer to deal with. As to the cause of the pain I think that is uncertain. There is no doubt at all that with the ulcer at the cardia there is as much pain, if not more, than with the duodenal ulcers, and I can hardly believe, therefore, that the pyloric spasm accounts entirely for the pain.

Dr. Harold L. Foss, Danville: Hunger pain of course always suggests duodenal or gastric ulcer but, as Dr. Luther states, the symptom is not always pathognomonic. I think in the light of our present knowledge Moynihan would not be willing to repeat his former statement that hunger pain and hyperacidity invariably mean ulcer. We know that there are many conditions, particularly chronic lesions of the gallbladder and appendix, which are capable of presenting symptoms heretofore considered positively indicating ulcer. A year ago I made a study of the gross errors made in diagnosis at the Mayo clinic. Thirteen hundred cases were investigated, all of them having come under my personal observation in the diagnostic department. The clinical diagnosis was finally compared with that made by the surgeon at the operating table. Gross diagnostic errors were discovered in 10.08 per cent. of the cases, but what is particularly interesting is that of these errors 65 per cent. had to do with the duodenum and gallbladder. Even with our perfected diagnostic methods in gastro-intestinal lesions the diagnosis of these conditions is at present far from an exact science. One thing which above all else has been of great help to us in this connection the past few years is the fluoroscope, and it is rapidly superseding the test meal in diagnostic importance. One point I think should be especially emphasized and it is that our general practitioners are not being sufficiently impressed with the great incidence of chronic upper abdominal lesions, particularly gastric and duodenal ulcer and chronic cholecystitis.

In the past six weeks in our little town of less than ten thousand I have had occasion to perform gastro-enterostomies or resection with gastro-enterostomies on eight cases of duodenal and gastric ulcer. The prevalence of these conditions I have tried to demonstrate to the family physicians of our community and have attempted to impress on them that the chief point which they should be on the watch for is hunger pain, but though this is strongly suggestive, a careful study of the case, particularly with the fluoroscope and Roentgen-ray plate, is absolutely necessary before a positive diagnosis can be made.

In our experiments, alcohol in large repeated dosage caused marked morphological changes in the brain-cells which went so far even as the destruction of some of the cells. Ether, on the other hand, even after five hours of administration, produced no observable destructive changes in the brain-cells.—George W. Crile, *Medical Review of Reviews.*

FACTS AND FALLACIES CONCERNING ELECTROTHERAPEUTICS *

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Electricity as a therapeutic agent is employed more frequently now than ever before. The evolution from empiricism to accurate knowledge of some of the physiological effects of electricity has been gradual but sure, until at the present time it may be said that there is a sound scientific basis for the employment of electrotherapeutic measures.

Progress in this field has been retarded by the following conditions:

1. The ancient teaching that electricity is purely psychic in action, and that its chief use, therefore, is in the field of neurology, with persistent adherence to this doctrine despite demonstrable evidence of many physiological effects and its application to other fields.

2. The erroneous statements appearing in modern textbooks on electrotherapy, also in special chapters contributed to standard works on general therapeutics, statements which evidently have been copied from old works containing ideas long since discarded by physicians who have kept apace with progress.

3. The absence of even rudimentary teaching in the majority of undergraduate and post-graduate medical schools.

4. The prejudice which has arisen from the association of electrotherapeutics with irregular practice, and the unwarranted claims and pseudo scientific teaching of honest but erring enthusiasts who do not use critical methods of control in their work.

5. A lack of proper standardization of electrotherapeutic apparatus. This condition is due to the fact that manufacturers do not know what is best suited to the needs of the profession, and that physicians, because of the lack of technical knowledge, cannot advise them. The consequence is that each manufacturer sets his own standard, with an ensuing confusion in the reports of results by different physicians possessing different apparatus. This is especially true where apparatus for the generation of high frequency currents is concerned, since these currents are subject to great variation, both as regards their character and the effects produced by them on the organism.

The realization of the foregoing unfortunate conditions has inspired the present paper, the purposes of which are: (1) To correlate the important facts concerning the physiological action of electrical currents and to specify what the author's experience indicates are some fallacies of teaching. (2) To plead for an unbiased study of the subject by all physicians as a duty which they owe both to themselves and to their patients. (3) To urge on enthusiasts the necessity of being guarded in their claims, for though electricity has many definite uses, it also has its limitations. It is imperative that physicians employing this remedy view the subject with the proper perspective, differentiating theory from proven basic principles, and being sure of reported results. (4) To recommend the addition of electrotherapeutic teaching to the curriculum of all medical schools, together with the installation of well-equipped electrical laboratories in these schools, and in endowed research institutes, where trained men may work in collaboration with the physicist, physiologist, pathologist and clinician on the same plane of dignity as those in the laboratories of bacteriology, serology or pathology. (5) To urge the correction of lax legislation which permits the employment of electrotherapy by nongraduates of medicine, who apply treatment without knowledge of physiology or pathology. There should be the same federal prosecution of malefactors who misrepresent electrotherapeutics in advertisements in the lay press as there is in the case of the misrepresentation of drugs. (6) To emphasize the necessity for standardization of apparatus and dosage if uniform results are to be obtained. Under the direction of a national body of electrical technicians and clinicians, it is possible to standardize electrotherapeutic apparatus and dosage with almost the same degree of accuracy as drugs in the pharmacopeia are standardized.

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* Read at the General Meeting of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 20, 1916.

In addition to its known value, electricity has great future possibilities, and perhaps may solve some of the elusive and difficult physical problems that have hitherto resisted scientific endeavor. It is true that many conditions can be treated with greater benefit by drug or other measures than by electricity, but experience also teaches that in many pathological conditions, the benefits to be derived from the application of electricity are greater than those obtained by any other means.

PHYSIOLOGICAL EFFECTS OF ELECTRICITY

Electricity, though always the same force, is manifested in many ways and, when modified and applied with knowledge, intelligence and skill, may be made to produce different physiological effects. It is on this variability that the whole superstructure of electrotherapeutics rests.

The known effects produced by electricity may be classified as follows: (1) Mechanical, (2) electrolytic or chemical, (3) counter-irritant, (4) thermic, (5) actinic, (6) psychic. These effects may be postulated, and it requires but simple logical deduction to reveal their application to rational therapeutics.

Mechanical contractions of nerves, muscles, ligaments and viscera may be produced by the interrupted galvanic, the plain or interrupted faradic, the sinusoidal, the static wave, static sparks, static induced current and the high frequency resonator discharge. These contractions may be general or local, slow or rapid, superficial or deep; irregular, or so rhythmical that they may be made exactly to synchronize with the heart beat. The employment of electrical contractions alternating with relaxations, accomplishes exercise without fatigue, with the incidental stimulating, developmental, eliminative and metabolic effects. All these currents have some particular indications, although there are conditions in which they may be used interchangeably or in combination.

The *electrolytic* or *chemical* action of the galvanic current is utilized to advantage in medicine, and offers a fruitful field for future research work. The destruction of small growths and treatment of hypertrichosis by electrolysis is well known. By a method known as ionic medication, various drugs may be introduced into the tissues. Copper, zinc, silver, mercury, magnesium and other metals may be separated from their salts and driven into the tissues from the anode, as may cocain, morphin or aconite. Iodin, the salicylates and other useful drugs are driven in from the kathode. The advantage of ionic medication over introduction of the drug through the alimentary tract is that the direct application of drugs insures a maximum effect, while when introduced by the stomach, chemical changes and distribution of action may materially lessen the local potency of the remedial agent. The opposite poles have opposite chemical reactions, the positive being acid in reaction, while the negative is alkaline; the positive contracts; the negative dilates; the positive is sedative; the negative is stimulating.

Heating of tissue is produced by the various forms of high frequency currents and from carbon, tungsten and nitrogen therapeutic lamps. The effect produced by a high frequency current may range from a slight irritation of the skin and the production of a simple hyperemia, to actual coagulation, desiccation or incineration. The action may be localized in one area or generalized over the surface of the whole body. The current may penetrate the body at given points; a joint may be heated, as may the liver, lung, kidney, or, indeed, any organ. This heat may also be distributed equally through every portion of the organism with a consequent elevation of the body temperature. The heat from electric therapeutic lamps, as far as is known, is comparatively superficial, although the lamps furnish a convenient method of applying surface heat, and are of undoubted value.

All degrees of *counter irritation* may be produced by the application to the skin of the galvanic and high frequency currents, the static brush discharge, heat from electric therapeutic lamps, and the ultraviolet rays. The counter irritation from the ultraviolet rays is more lasting in effect than that obtained by the other methods.

Actinic effects are produced by some of the spectral and extra spectral rays generated by electrical currents. Blue rays are known to be sedative and red rays stimulating. The action of the other spectral rays are not so well determined. Very little is known of the action of infra-red except that of heat. The ultraviolet rays are strongly actinic and are bactericidal in action to a marked degree, very stimulating, and irritating, even to the point of producing the destruction of superficial tissue. Under modifications of application, consisting of filtration of irritating wave lengths by interposing blue ultraviolet glass, and compression of tissue, for the purpose of producing ischemia by quartz lenses while the rays are passing through, these rays may be made less irritating. The rays cannot penetrate any substance colored red, hence the necessity of producing a temporary ischemia to insure penetration by the rays. Under ischemia, the penetration is from 1 to 4 mm. The ultraviolet rays may be used with success in some skin lesions and in such systemic conditions as are benefited by sunlight. The Roentgen ray properly comes under electrotherapeutics, but because of the wealth of literature on this subject, it will not be discussed here.

The beneficial *psychic* influence of electricity on some impressionable patients is undoubted, and is welcomed in the treatment of such conditions as hysteria and hypochondriasis, but this is the least of the beneficial effects of electricity, and not the greatest, as some of us have been taught to believe. There is an influence aside from the psychic one. It may safely be asserted that the individual who comes in unexpected contact with a live wire does not die from the psychic effect; conversely the therapeutic application of a selected current benefits the recipient.

Let us now consider some of the fallacious teaching.

1. The word *modality* seems to have been recently coined and is used frequently in literature dealing with electrotherapeutics to express the particular method employed in a given case. There is no necessity for coining this word, as the terms current method or mode amply express the intended meaning.

2. The belief that the galvanic current on account of its low voltage follows the surface of the body and does not penetrate into the deep tissue is an erroneous one. The dry skin is a poor conductor but when it is moistened. electricity passes through it with ease. The deeper tissues are largely of saline fluid composition, therefore, they are a good conducting medium, and the galvanic current passes through them freely. Living bone, with its constant moisture is a much better conductor than the skin. The brain is acted on perhaps more freely than any other tissue because of the large percentage of fluid of which it is composed, and the current easily reaches the brain because it is a better conductor than either the scalp tissue or the cranium. The action of the galvanic current on the brain is shown by the dizziness or even syncope, which results when the current is passed transversely and not longitudinally; this also results from a sudden break in the current or when the circuit opened and closed too suddenly. When the galvanic or any other current is applied in a bath and the body is submerged during the passage, the action is largely on the skin surface, because it requires less electromotive force for the current to pass through the water than through the skin to the deeper tissues.

3. It has been asserted that high frequency currents produce their effects by various influences, among which has been mentioned "fine cellular massage." There is no present evidence to show that there is any action other than that of heat, but it may be truthfully said that for the superficial or deep application of heat, with its known benefits, high frequency currents hold first place.

4. The application of high frequency glass vacuum tubes is often erroneously called ultra-

violet-ray treatment. Ultraviolet rays will not penetrate ordinary glass. If the tube is held a short distance from the body allowing the sparks to pass through an air space, a very small amount of ultraviolet rays that may reach the skin is generated, but no quantity sufficient to produce any therapeutic effect. Practical ultraviolet rays can be produced only by iron-carbon or quartz mercury-vapor lamps, and projected through clear water, air or rock crystal. The quartz mercury-vapor lamps are much more powerful than the iron-carbon lamps and have largely superseded them.

5. Physical contractions by the static wave current and static sparks have been recommended for acute neuritis for the purpose of aborting or shortening the attack, by hastening the absorption of exudates, promoting tissue drainage, relieving pressure, reducing muscle spasm and alleviating pain. This is a plausible theory, but does not work out in practice in the case of acute neuritis. Because of its high voltage and relatively low amperage, the static wave current is less irritating than the interrupted galvanic and faradic currents and may do less harm, but even so, why treat an acutely inflamed nerve by any manipulation, no matter how slight, that produces trauma? Absolute rest and immobility are the first indications. In addition, heat from electrical sources, such as high frequency currents and electric therapeutic lamps, or mild positive galvanism to lessen nerve irritability, may be used to advantage. Mechanical or electrical contractions should never be induced during the acute stage of a true neuritis, whatever the anatomic location. During the subacute and chronic stages, the static wave current and static sparks, together with diathermy, may be used, and will not only give relief, but also materially hasten the cure. Reported cases of acute neuritis aborted or cured by the static wave current and static sparks, probably were not cases of true neuritis at all, but neuralgias or myalgias. For the relief of muscle spasm these currents are exceedingly valuable. In cases of inflammation due to infection, or in cases where pus is present, electrical contractions are always contraindicated and may if used produce harmful results. High frequency currents, ultraviolet rays and radiant light and heat may be used to advantage to promote phagocytosis before and after incision and drainage.

6. Another error is the claim of the reduction to normal size of large fibrous prostates. Honest but mistaken physicians have reported that these results have been obtained and have indeed gone so far as to assert that operative surgery can be dispensed with in these conditions. What really has been accomplished is the relief of the superimposed infiltration and chronic inflammation, the abatement of which ameliorated or obviated the symptoms. The static wave current is extremely valuable for this purpose, and may obviate the need for surgical interference in cases that would otherwise require prostatectomy. In cases of hypertrophied fibrous prostates, in which the tissue draining effected by the static wave current does not relieve the coincident congestion sufficiently to abate the symptoms, and in which there is an accompanying cystitis, bladder atony and dilatation, the Roentgen ray may affect the fibrous tissue as it does the tissue of uterine fibroids. If the application of the ray produces no improvement, prostatectomy is the only means of relief, unless it be permanent catheter life. An acutely inflamed prostate should not be treated by the static wave current for the same reason that an acute neuritis should not be so treated.

7. There is a widespread belief that the static positive and negative poles may be used interchangeably. This is an error, inasmuch as sedative or irritating effects are dependent on the polarity.

8. It is claimed that *ozone* generated by the high frequency current and passed through aromatic oils (for the purpose of absorbing the irritating nitrous acid, which is generated together with the ozone) is beneficial in diseases of the respiratory tract, such as catarrh, bronchitis and tuberculosis. Pure ozone alone is irritating to mucous membranes, and much more so when mixed with nitrous acid, which is seldom, if ever, entirely absorbed by the oils. Ozone is very unstable, and even though it did possess virtue, it could not reach the throat or lungs in a pure state, because of the chemical combinations it would form, especially with nitrogen, before reaching its destination. Its use should be condemned because it produces an irritating effect and aggravates the conditions rather than relieves them. There may be some beneficial effect from nebulized oils alone, but not from ozone passed through them. This so-called ozone therapy has been a fruitful field for charlatans and many have been its victims.

9. In the case of pathologically incurable diseases, such as locomotor ataxia, paralysis agitans, chronic Bright's diseases, diabetes, etc., extravagant claims too ridiculous for refutation

have been made for electricity. The employment of electricity is amply justified in these cases, for the improvement of metabolism, the promotion of comfort and the prolongation of life, but no cure can be expected.

10. The question of the value of high frequency currents for the reduction of blood pressure is of interest to the profession, and there is much difference of opinion regarding it. Indeed, some eminent therapeutists have declared them to be of no value whatever. Autocondensation, if administered properly, is a very valuable adjunct to dietetic, pharmacal, hydrotherapeutic and hygienic measures, in cases where the reduction is indicated, especially when autointoxication is the causative factor. In chronic nephritis, the rise in blood pressure may be a compensatory condition, and it may not be prudent to lower it beyond a certain point. Autocondensation acts by the dilatation of the peripheral vessels, thus producing an equalization of the circulation and probably increased oxidation and elimination. Increased specific gravity of the urine is noted after autocondensation treatment; to some extent this may be due to greater concentration after an increase of perspiration. It is often possible to reduce the pressure from ten to twenty points, or even more, by one treatment. With continued treatment, there is more or less permanency in the reduction, although this doubtless is partially due to other measures coincidently employed. Were it necessary to choose between ordinary rational measures and autocondensation, the former would be chosen as first in value but when both are used together there is no doubt that better results are accomplished than when either is used alone. This conclusion has been reached after years of careful observation. It may be added here that static currents elevates the blood pressure in the case of hypotension, while high frequency currents lowers it when hypertension exists.

ELECTRO-DIAGNOSIS AND PROGNOSIS

The value of the galvanic and faradic currents and the more recently studied condensor discharges for nerve and muscle testing in peripheral and in some central nerve lesions for the determination of changes in electrical response leading to the reaction of degeneration is proved, and the method should be in more general use by the profession, as often a diagnosis and prognosis may be given promptly, malingerers exposed, guess work eliminated and reputations for ability enhanced. The electromagnet is useful in locating and extracting iron or steel foreign bodies, especially in the eye. Electrically lighted endoscopes are a wonderful aid in diagnosis and treatment and are now almost indispensable to successful medical practice. Electrical tests for death are absolutely reliable.

The following are a few conditions in addition to those already mentioned that may be successfully treated by electricity, together with the types of current employed:

Intestinal impactions and obstructions are favorably influenced by the dilating and softening action of negative galvanism, the bowel having first been distended by normal saline solution, which acts as the conductor of the current. In some cases of intestinal stasis and chronic constipation the patients recover under treatment by the interrupted galvanic and faradic sinusoidal, static induced and static wave currents.

Dr. S. Lewis Ziegler of Philadelphia has reported good results from negative galvanism in glaucoma and in some cases of optic atrophy; and from positive galvanism in plastic iritis, spongy iritis, iridocyclitis, choroiditis and intraocular hemorrhage. These results have been verified by other eminent ophthalmologists.

Bell's palsy usually responds to treatment by negative galvanism.

Some cases of lumbago and sciatica are quickly relieved by the static wave current, static sparks and diathermy. Regeneration after anterior poliomyelitis, simple or multiple neuritis, hemiplegia or muscular atrophy from any cause is hastened by the use of interrupted galvanism, faradism, sinusoidal current and diathermy.

There is evidence that patients placed in an electromagnetic field may be relieved of conditions of nervous instability. Successful treatment of chorea has been reported. Conditions of nerve exhaustion or neurasthenia are benefited by the static breeze and static bath. Tic douloureux is frequently controlled by diathermy, salicylic ionization and radiant light and heat.

Obesity is benefited by the Bergonie method of general faradization.

Simple goiter improves under iodin ionization.

Anal and other fistulas often heal following copper or zinc ionization.

Chronic cystitis often may be satisfactorily treated by copper or zinc ionization, the bladder being distended with a weak aqueous solution of copper sulphate or zinc chlorid, the water acting as a conductor of the current and the drug being dissociated in the bladder wall.

The electric incandescent lamp cabinet bath is valuable to dilate the peripheral vessels and to produce diaphoresis in conditions where increased elimination is indicated. The bath has an advantage over the Turkish baths in that the patient is not subjected to the deleterious influences of vitiated air.

Chronic articular rheumatism and rheumatoid arthritis improve under the application of diathermy, the static wave current, static sparks and salicylic ionization.

Effusions after sprains or other trauma are often rapidly absorbed by the use of the static wave current and static brush discharge.

Chronic leg ulcers are favorably influenced after treatment by zinc ionization and ultraviolet rays.

The sterilization of wounds or prevention of surgical infections is frequently accomplished by the ultraviolet rays, and by ionization. These methods are being used extensively and with success in the present European war.

Infantile uteri, whether congenital or due to superinvolution, often develop under negative galvanism, and the relief from sterility from this cause frequently follows. There is no other method so effective as this one. Remarkable results have been reported by Dr. Barton Cooke Hirst, of Philadelphia.

Physiologic involution of a subinvoluted uterus usually follows treatment with positive galvanism.

Some cases of endometritis respond to copper and zinc ionization.

Hyperchlorhydria and atony of the stomach improve under negative galvanism applied by means of intragastric electrodes, water in the stomach acting as a conductor. These electrodes are first swallowed and then withdrawn after the treatment.

As an adjunct to other measures, the treatment of surgical and pulmonary tuberculosis by diathermy, which consists of heating joints, lungs, etc., to a temperature sufficient to produce hyperemia, is highly beneficial. In the case of lung cavities, care must be taken in regulating the thermic intensity to avoid the danger of pulmonary hemorrhage.

Resuscitation by means of strong rhythmical faradic shocks over the diaphragm, precordia and the phrenic nerve, may be possible after ordinarily lethal accidents due to chloroform, opium, electrocution, drowning or gas asphyxia.

Some urethral, esophageal and rectal strictures, also uterine stenosis, yield to treatment by negative galvanism. Careful technic must be practiced to insure success.

A notable achievement is the destruction of papillomas and some other bladder growths by means of the high frequency current applied through a cystoscope. This method of destruction is also applicable to growths of the larynx, esophagus, rectum, urethra, vagina and uterine cervix, when suitable endoscopes are used to expose the growths.

Hypertrophic infected tonsils may be reduced by the desiccation method.

Some malignant growths in accessible regions, even where bone is involved, may be treated with success by the high frequency desiccation, surgical diathermy, de Keating Hart's method of fulguration (which is used in combination with operative surgery), and zinc-mercury ionization. Care should be taken with these methods, except de Keating Hart's fulguration, when working near large blood vessels, as secondary hemorrhage may result on separation of the slough.

Electrolysis is the only reliable method for the treatment of hypertrichosis.

Tattoo marks may be removed by the desiccation method. Nevus flammeus, lupus, acne, eczema, psoriasis and some types of alopecia often may be treated with success by the ultraviolet rays.

The electro cautery is well known and is used extensively throughout the medical world for sterilizing wounds and for general surgical purposes.

These few illustrations give some idea of the almost limitless field of usefulness open to electricity.

The following are some of the future possibilities in electrotherapeutics: The abstraction of metallic poisons from the body, such as mercury, arsenic, lead, etc., by ionization. This is theoretically feasible, in fact, good results have been reported. Safe local and general anesthesia with loss of consciousness and perfect relaxation seems possible through the application to certain brain and nerve centers of a rapidly interrupted galvanic current, known as the Leduc current. This has been demonstrated by animal experimentation and Leduc himself submitted to the experiment and pronounced it successful. There has been some controversy over the practicability of this method, however, and for this reason it may be said that it is yet in the experimental stage. Work along this line has been hampered by the inability to secure human subjects. It seems possible that analgesia from pain due to any cause and the rapid induction of natural sleep may sometime be accomplished by sedative action on the nerve centers or by peripheral nerve blocking, thus lessening the necessity for the use of opiates. It is not beyond the bounds of possibility that a method may be established whereby electrical means may be used to promote the formation of antibodies against some forms of infectious diseases. There is at least theoretical basis for the hope that future research may bring about a realization of all these desirable results, visionary though they now may seem.

The present attainments and future possibilities of electrotherapeutics are surely sufficient to make a serious study of the subject worth while.

THE AUTHOR'S SYSTEM OF TEACHING ELECTROTHERAPEUTICS

Electrotherapeutics should be studied from the standpoint of cause and effect rather than by an outline of indications, and this is the system practiced with the classes at Jefferson Medical College. Ten didactic lectures of one hour each are given to the third year class and cover the following subjects: Demonstration of apparatus and accessories. Study of electrical currents and how they are produced. The physiological effects of these currents; experiments performed before the class. The technic of application. Indications for use from the standpoint of pathology.

It is impressed on the students that they cannot learn the indications from memory, but that they must decide from a knowledge of normal physiological action and of the pathological condition existing in a given case, what current or currents to use, whether alone or in combination, and with what technic of application, in order to produce the desired effect in the individual instance. The fourth year class is divided into sections and each section receives six hours of practical instruction in the electrical clinic at Jefferson Hospital. This instruction includes the application of the currents to patients by the students themselves. Postgraduate work and supplementary reading is advised in addition to this course, as the time devoted to the subject is too short to give the students more than an elementary knowledge of the application of electrotherapy.

RÉSUMÉ

Success in electrotherapeutics depends on an adequate knowledge of physiology and pathology as related to the human body; on a mastery of the laws that govern electricity; on the possession of efficient apparatus, the achievement of good technic by practice and the good judgment to apply all these acquirements to the best advantage. Given two men with the same apparatus, one may get excellent results and the other poor results, for the same reason that in the hands of one, calomel may be a potent remedy, while in the hands of another it would fail.

Electrotherapeutics is not a system to be used to the exclusion of other therapeutic measures, but is a worthy additional unit to any physician's armamentarium. Competence in this as well as in other methods of physical therapy will do much to discourage irregular practitioners who are thriving on charlatanism.

1809 Chestnut Street.

DISCUSSION

Dr. H. C. Westervelt, Pittsburgh: Dr. Clark is trying to give the student in Jefferson Medical College such a knowledge of electricity that it will be an important part of his armamentarium when he goes into practice. When I was at the University of Pennsylvania it was my rare privilege to be associated with Dr. H. C. Wood. There I got my start in electrotherapy, a start which was of inestimable value. He also gave me my start in the physiological investigation of this subject. The subject of electrotherapeutics is not taken up in our general literature. Textbooks, after much space given to treatment, tack on at the end, "Electricity may be tried." You might as well say a tincture may be given. Now there is an amount of definite knowledge which is readily available. We know definite things about the constant current, we know what the positive and negative currents will do. The reason electrotherapy is in disrepute is because of the ignorant use of it. The positive side of the direct current being analgesic and the negative irritative, the patient will be much worse off if the current is wrongly applied. Of course the practitioner will blame electrotherapy.

When it comes to modern electrotherapy Bergonie's method of general faradization in disturbed metabolism, in diabetes and Bright's disease is of value. When it comes to literature on hypotension, there is nothing. On the Continent and in English literature there is a great deal of it. In the work in which Lewellys Barker is engaged, he mentions electrotherapy many times. I also notice that the references are to English and French literature, which is not available for the average medical man. It is up to the medical colleges to teach electrotherapy. We should follow the injunction of the Bible, find out what is good and hold fast to it.

Dr. J. Torrance Rugh, Philadelphia: I wish to emphasize the point that the trouble partially lies with the electrotherapeutists themselves. Electrotherapeutists speak of curing anterior poliomyelitis. How do they know they are doing it? They cannot tell, because we have the abortive cases of it. There are all degrees of infection between the mild and the severe, and unguarded statements such as I hear from some of the electrotherapeutists are, at least, unwise. There is need for such an article as Dr. Clark has just given us, for the education of the medical profession and I think our friend should see to it that there is a widespread educational propaganda for the general profession and then we will be in a position to understand the uses and limitations of electricity.

Dr. G. G. Davis, Philadelphia: The paper by Dr. Clark mentioned the very point of misrepresentation which Dr. Rugh has brought out. What I would like to call attention to is the fact that it is a question of methods in teaching. Medicine and surgery have progressed so rapidly that general medicine and general surgery practically have monopolized almost the complete field of our medical school teaching. The consequence is they relegate the special lines, eye, ear, nose and throat and electric forces, to the background. We should bring them out and emphasize them. Our graduates know about many minute points in general medicine and surgery but know almost nothing about the common and more important affections placed in the specialties. There is no reason why we should not have a chair of electrical therapeutics in the same way as we have of the other specialties. I think we will have to recast our medical curriculum and bestow a little more attention to the advances made along the special lines.

THE RAILROAD PHASE OF FIRST AID*

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HARRISBURG

By first aid is meant the emergency care of the sick and injured before a physician can be placed in charge and of cases thought too trifling for professional attention. Throughout the progress of the first-aid movement the chief concern has been with injuries. In fact, the movement has been a natural and quite inevitable process which began as soon as surgeons and bacteriologists became convinced of the large part played by initial infection or by the absence of initial infection in the history of wounds. Practical efforts to control such infection crystallized into the first-aid movement. The American National Red Cross became its protagonist, and has carried on a persistent, nation-wide campaign by means of its well-known publications and its course of lectures and demonstrations leading to diplomas. To recount the growth of first-aid work on all the railroads of the state would exact, I think, an unwarranted tax on your attention. I shall confine myself to the work on one road as typical.

It was in 1904 that the Pennsylvania Railroad took up the subject. The problem was twofold, to provide an equipment simple enough to be applicable to the diverse conditions of railroading and to instruct employees in essentials of first aid.

As regards equipment, a packet of sterile dressings was adopted for exclusive use in the first-aid protection of wounds. The packet is air and moisture proof and contains one cambric bandage, one triangular bandage, two safety pins and two compresses so wrapped in oiled paper that they need not be touched when applied to wounds. The packets are distributed in tin boxes which hold six. On the outside of each box is a printed folder which gives succinct first-aid information. A tag bears an order to the user to obtain a fresh box as soon as the seal is broken. The main purpose of this order is to insure that there shall always be six packets of dressings on hand. This packet is convenient for distribution and its uses are easily understood. Packets are placed wherever they may be of service, not only where employees work in large groups at shops and terminals, but also in isolated small groups on trains and tracks as well as to many lonely workers in towers and watchmen along the right of way. Employees are designated to inspect the boxes of packets at frequent intervals.

Stretchers are placed on baggage, mail and express cars, work and wrecking cars, at stations, shops and wherever else, in the judgment of the officers in charge, they may be needed. A blanket usually accompanies a stretcher, and at many shops the box containing stretcher and blankets holds also a set of wooden splints.

At many places the offices of the physicians of the relief department are located at shops or terminals and serve as first-aid centers with a physician in attendance day and night at some of them. A handsomely equipped emergency hospital and office of the relief department has recently been opened at Pitcairn, the freight terminal of the Pittsburgh division.

This summary covers the equipment for first aid.

As for instruction in the subject, the aim at first was to teach selected employees as foremen and trainmen, but this was speedily abandoned in favor of the instruction of all employees. As there are at present over 150,000 on the payroll of the lines east of Pittsburgh and Erie this is no small undertaking. It is done by the physicians of the relief department who aim to present the essentials of the subject in frequent lectures lasting about an hour. The first injunction is to send at once, in cases of any severity, for the nearest physician, to whom is to be given as far as possible a description of the injury The men are cautioned to confine themselves strictly to what the term implies, first aid. Emphasis is laid upon the danger of infection of fresh wounds with a brief reference to the rôle and ubiquity of germs in order that the men shall realize why it is dangerous to touch a wound with the bare hand. The control of hemorrhage, the application to wounds of the first-aid dressings and the care of fractures are explained. The treatment of shock is discussed. Dressings and splints are applied, and a man is placed on a stretcher.

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* Read before the Section on Surgery of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 19, 1916.

When a layman is called on to administer first aid in acute sickness he is conscious of an immense desire to help and of profound ignorance of the means to pursue. So he passes forthwith into an almost hypnotic state of suggestibility and seizes on any advice bystanders may proffer. The employees of the railroad are relieved of this perplexity by the injunction that they are to give no drugs in emergency cases and are to regard whisky as a drug. They are informed that it is the province of a physician to administer medicines. Briefly are outlined commonsense instructions for the care of fainting, epilepsy, pain, heat exhaustion and sunstroke. At the close of the lecture each man in attendance is given a copy of the printed folder containing hints on first aid which I have already mentioned as attached to the first-aid boxes.

During the past summer a pamphlet entitled "Hints on Health and First Aid" has been distributed to 90 per cent. of the employees. Another pamphlet in fourteen languages contains rules for the government of employees working on or about tracks.

By 1906 it was found necessary because of the widespread use of electricity to add instruction in the rescue of victims from live wires and in resuscitation from electric shock. This instruction is as practical as possible. At first the Sylvester method of resuscitation was taught, but we were very glad to change to the Schaefer method when the report of the Commission on Resuscitation from Electric Shock was published in 1913. The Sylvester method is as complicated and laborious as the Schaefer method is simple and easy to perform. Every employee who is engaged on electrical equipment or who runs over the electrified sections of the railroad is given individual instruction when he not only practices the Schaefer method but also has it carried out on himself. We find that a man appreciates the effectiveness of the method only after it has been carried out successfully on his own body. Mechanical respirators are placed at strategic points on our electrified lines; but dependence is placed on manual means for the reason that success depends on help during the first moments of suspended respiration.

During the past year a committee of physicians of the relief department has investigated the subject of first aid. This committee found that there was a tendency where numbers of men were employed as at shops to add to the equipment furnished by the company such popular remedies as carron oil and peroxid of hydrogen. The committee has recommended that there should be installed at shops, stations and wherever else it could be advantageously used a cabinet containing liquid antiseptic soap, enameled basin, sterilized gauze, cotton and assorted bandages, scissors, spool of adhesive plaster, 3 per cent. alcoholic solution of iodin, tubes of petrolatum with 3 per cent. bicarbonate of soda, wooden applicators and wooden tongue depressors. This cabinet has practically been adopted.

In conclusion, I would state from my own experience, which has been rather extensive in first-aid work, that the employees are keen in appreciation of the importance to themselves of the subject and do their best to put into practice the instructions they have received. The results obtained have been most satisfactory to the company.

413 Market Street.

INJURIES COMMON TO POLICEMEN AND FIREMEN AND THEIR FIRST-AID TREATMENT *

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In a review of my records of the classification of injuries sustained by the police and firemen during the past nine years I find they are not unlike the records of an out-patient department or receiving ward of a city hospital, so diverse and varied are the cases. There are, however, certain injuries to both the police and firemen which are prominent because of their frequency.

Neither the police nor firemen have any such well defined occupational disease as the miner's elbow of the miner, the chrome ulcer of the tanner, the necrosis of the jaw of the match

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* Read before the Section on Surgery of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 19, 1916.

maker or phosphorus worker, the lead poisoning of the painter, nor the aneurysm of the blacksmith. Yet the injuries herein given are so common that they might be considered as injuries incident to their occupations.

WOUNDS COMMON TO FIREMEN

Of all wounds received by firemen the two most common are puncture wounds, and lacerated wounds caused by falling glass.

Puncture wounds are usually received while working at fires. The firemen naturally have no time to "watch their step," and while walking over fallen floors and débris frequently step on nails. The nail pierces through the boot and not infrequently a piece of the rubber sole is carried into the depth of the wound. When the wound is opened it should be searched to see if a bit of rubber is lodged.

Puncture wounds may be received while working in the fire house. A fireman usually wears an old pair of slippers or unlaced shoes while in the fire house. When an alarm of fire is sounded the slippers or shoes are kicked off and the fireman runs in stocking feet to his rubber boots which stand alongside of the fire apparatus. In this way splinters often cause puncture wounds of the feet. Wire from bales of hay, pitch forks and horseshoe nails play a smaller rôle in the causation of puncture wounds.

Firemen are frequently wounded by falling glass. Such wounds are incised or lacerated, and are usually confined to the hands and wrists. The face is cut less often, as the fire helmet protects the face. Heavy plate glass or falling skylights inflict serious wounds to the hands and wrists. Tendons, arteries and nerves are often severed. There are three firemen in Philadelphia who are permanently crippled because of such accidents. Wounds caused by hot glass are more severe than those caused by cold glass. Hot glass sears the edges of the wound and devitalizes the tissues. Such a wound is usually infected and not unusually sloughs. Injuries inflicted by cold glass cause incised or lacerated wounds and are less likely to become infected.

Tin roofs must often be hastily torn off to get at fire of the underlying wooden beams. The firemen have hooks for this purpose, but often, in their hurry, use their hands, consequently severe wounds of the hands are not uncommon. Such wounds are lacerated and are usually infected.

Crushed fingers and toes are not uncommon. The toes are either trodden on by the horses in the hurry of "hooking up," or are run over by a wheel of the apparatus. Kicks by horses cause many contused wounds and bites by horses are not infrequent.

Firemen suffer from many contused and lacerated wounds of the head. The fire helmet, made of leather or aluminum, often saves the fireman from injury to the head and back of the neck. The leather helmet is very heavy. It has the advantage over the lighter helmet of aluminum, however, in that the latter is apt to get so hot that it cannot be worn. When an avalanche of bricks or débris falls the helmet is apt to be knocked off and the fireman may sustain contused or lacerated scalp wounds, or a fractured skull. Another very frequent cause of contused or lacerated wounds of the head and face is the faulty spreader. The spreader is the apparatus used to hold the horse harness suspended from the ceiling, which facilitates and hastens "hooking up" the horses. After the horses have been harnessed and the reins have been jerked the spreader should fold up and be drawn to the ceiling by counter weights. When, however, the pulleys or the counter weights fail to work the spreader swings back and is apt to strike the fireman harnessing the horses either in the head or face. If it does so it will probably inflict a ghastly wound.

WOUNDS COMMON TO POLICEMEN

Policemen frequently suffer contused wounds of the head and face as a result of combats with their prisoners. Black jacks, butts of revolvers, bricks and fists are usually the weapons used. Contusions and contused wounds of the hands are caused in like manner. We should not expect the policeman to be à Chesterfield when making an arrest. The public and the press are too apt to criticise the policeman for "beating a prisoner up." They seldom hear the policeman's side of the story.

Lacerated wounds of the knuckles frequently result from striking a prisoner in the mouth and being cut by a tooth. These wounds are always troublesome. They are always virulently infected. I have one policeman who has an ankylosed hand and has lost one finger, including the metacarpal bone, from such an injury. Another officer has lost the thumb of his right hand during the past week from a similar injury. There are several who have ankylosed metacarpophalangeal joints resulting from an injury of like character. In one case a chancre developed at the site of the laceration on the knuckle and the patrolman had a resulting attack of syphilis.

Policemen not infrequently suffer from gunshot wounds. The bullet is usually the lead bullet of the civilian's revolver and must usually be removed.

FIRST-AID TREATMENT OF WOUNDS

In the discussion of the first-aid treatment of wounds, as well as the first-aid treatment of fractures and of all other injuries, I am confining myself solely to the treatment of injuries sustained by policemen and firemen in a large city, where numerous hospitals are within easy access. I am not touching on the first-aid treatment of wounds for campers, those engaged in military practice, etc.

Our text of the first-aid treatment of wounds is to stop hemorrhage, keep the wound clean and put the part at rest.

Hemorrhage is stopped by proper means. We now use the army tourniquet, having discarded the elastic tourniquet from our emergency kits, as the rubber deteriorates and often the rubber tourniquet has broken while being applied. After hemorrhage is stopped the wound is swabbed with iodin, which is contained in an ampule. A compress of gauze, from Johnson and Johnson's first-aid package, is placed on the wound and held in place with the attached two-tailed bandage. The part is then put at rest and the patient hurried to a hospital. We do not attempt to suture any wound on the fire ground. Even when treated at a hospital we urge that, unless muscles, tendons or nerves be cut, a wound inflicted at a fire, especially if caused by tin or hot glass, be left unsutured. If sutures are necessary, suture loosely and allow for free drainage. I have had innumerable cases of cellulitis, lymphadenitis and lymphangitis resulting from the suturing of such wounds without good and free drainage. Lacerated or contused wounds of the scalp when sutured should be loosely sutured and freely drained. Personally, I never suture scalp wounds, excepting to stop hemorrhage, or unless there is wide gaping of the tissues.

The firemen are well educated to the danger of puncture wounds, especially if the wound is contaminated with stable or street dirt, and they apply at once for treatment. These wounds are opened, thoroughly explored for a foreign body (such as a piece of the sole of a boot), are disinfected and drained. An immunizing dose of tetanus antitoxin is always given. We have never had a case of tetanus following a puncture wound in the history of the fire department.

Only one case of tetanus has occurred in the fire department since 1871. This case followed a cut by glass.

Wounds resulting from striking a person in the mouth and receiving a "tooth cut" should never be sutured, but should be disinfected with pure carbolic acid and alcohol and drained. We use rubber tissue as a drain.

In case of shock from hemorrhage, or in case of shock from being pinned under a fallen wall, etc., we use morphin freely. It is administered by means of the individual Greely hypodermic syringe. Stimulants, as strychnin, camphorated oil, etc., can be so given. With the present use of the oxyacetylene flame, firemen pinned down by steel girders can be liberated in one tenth of the time it formerly required to "jack up the beam or girder to release him." An oxyacetylene apparatus should be part of the first-aid equipment of every fire department.

Bites by horses were formerly common in the fire department, but with the advent of motor-driven apparatus horse bites, kicks by horses and crushes of toes resulting from horses stamping on the hosemen's feet have been supplanted by fractures of the forearm from cranking the engine of the apparatus, as few of the engines on trucks and fire engines have self-starters.

Dog bites in the police department are common. I have had six officers bitten by rabid dogs. Four were sent to the Pasteur Institute in New York and two I treated with the Pasteur treatment in my office, an injection of the emulsion being sent daily by Mulford's. None of the officers developed hydrophobia.

BURNS AND SCALDS

Policemen are seldom burned or scalded. The firemen are more frequently burned than scalded. The burns are caused by actually working too near the fire, by hot bricks, by falling embers, burning timber, or hot plaster, by explosion of gasoline, illuminating gas, or smoke explosions. Acid burns are not infrequent. The men are apt to receive acid burns at fires in laboratories and chemical works. They are occasionally burned with sulphuric acid while refilling the chemical tank carried on the hose carts. Scalds are more infrequent. Scalds are usually due to contact with steam at fires in engine rooms or laundries.

Picric acid solution (.5 of 1 per cent. solution) is applied as the first-aid treatment on the fire ground. Carron oil has been discarded, as burns treated with it usually become infected.

Alcohol dressings usually cause pain. Picric acid may cause pain. It certainly keeps a burn cleaner than any dressing I have ever used. Boric acid ointment is soothing.

Great care should be used in removing the clothing from a burn. Never expose the whole area of a large burn to the air at once. Remove the clothing from a small area by soaking with peroxid. Dress this area and then remove more clothing and dress the second denuded area, and continue to dress the burn "piece meal" until the whole burn is dressed. The same rule applies for the redressing.

ASPHYXIATION

The policeman has scant occasion for being asphyxiated. The fireman is frequently asphyxiated. Asphyxiation may be due to smoke, to smoke impregnated with illuminating gas, to smoke impregnated with banana oil, or with other poisonous fumes, as chlorin, ammonia, acids, etc. Banana oil (amyl acetate) is found where lacquer, bronze paint or aluminum paint is used or made. Smoke from burning pepper or spices is highly irritating. Hot smoke is far worse than cool smoke. Smoke from burning lumber, rags, barrel staves, burned paper and wet hay is hard to tolerate. Smoke from oils is not so hard to endure. Smoke impregnated with ammonia is apt to cause strangulation and death in a few minutes. Ammonia is used in the process of making ice, in cold storage plants, in restaurants, in dye house, in breweries, and in wool washing establishments. Smoke from burning celluloid is highly dangerous because of the presence of hydrocyanic acid. Nitric acid is encountered in chemical works, in belt-making establishments, and in the manufacture of tar products. Sulphuric acid is also encountered in chemical works.

Firemen after many years of service become accustomed to smoke and some of the older men can remain in a smoke-laden atmosphere for an astonishing length of time. The best air in a smoky room is always close to the floor. Around the nozzle of a hose pipe there is fresh air which is carried in with the water.

Smoke can be better tolerated when a high wind is blowing which occasionally causes the smoke to rise and allow a breathing space, than on a humid day when there is no wind and the smoke settles to the ground.

Sub-cellar fires are always dangerous from a medical standpoint because of the many resulting cases of smoke asphyxia. Firemen who have been on active service a long time can often taste illuminating gas before they can smell it in a smoky atmosphere. It is not always easy to distinguish and often is not discovered until its effect is shown upon the men.

We recognize three stages of smoke asphyxia. In the first stage the victim is conscious; in the second stage the victim is unconscious, but is still breathing; in the third stage there is apnea.

In the first stage of smoke asphyxia a fireman staggers out of the building reeling often like a drunken man. Firemen, when in such a condition have been accused of being drunk. The victim is coughing and trying to vomit. His eyes are red and burn intensely. He has severe throbbing headache, is dizzy and his legs feel weak. When an attempt is made to get him away from the fire he may fight like a drunken man. Such a man should be removed promptly from the smoky atmosphere, his clothing should be loosened, and a blanket should be thrown around him. One of several preparations may be given. Weiss beer is efficient. If this cannot be had, give a Seidlitz powder or a dessertspoonful of effervescent sodium phosphate in a tumbler of water. A teaspoonful of aromatic spirits of ammonia, or a teaspoonful of Hoffman's anodyne in half a tumbler of water will often give relief. Vomiting tends to bring up the gases and mucus from the lungs and stomach.

The fireman should be kept out of the smoky atmosphere until he has regained the strength of his legs and has regained his equilibrium. If his condition becomes aggravated he should be sent to a hospital. Should he have a chill he should at once be sent to a hospital. A fireman overcome with smoke twice at the same fire must usually be sent to a hospital. A fireman who is unsteady on his legs and who is only half conscious as to what he is doing is of no help to his company and is in great personal danger, as he may fall in the building and be lost or he may walk off a roof or stagger into an open elevator shaft.

A fireman should keep near to the hose of his company. He is then in no danger of being lost, and should he become dizzy or weak he can follow the hose out of the building. At a smoky fire a company usually works in relays. Two or three members of the company handle the nozzle for a short time. They are then relieved by two or three others who are fresh.

If it is necessary to remove a fireman to a hospital, he should be taken to the nearest hospital, irrespective of whose ambulance is being used.

When the nearest hospital because of overcrowding can no longer promptly care for the firemen being sent from a fire they should then be sent to the next nearest hospital. The system is a poor one which allows a hospital ambulance to take firemen to its own hospital unless it be the nearest hospital to the fire grounds. Ambulance surgeons are often overzealous in trying to make a record for their hospital and often do so regardless of the danger to or the welfare of the firemen.

Ambulances or patrol wagons should be stationed at different points as close to the fire as is practical and it should always be seen that they have a clear street for hasty exit. When a fireman becomes unconscious he is carried to the street. He is quickly transferred to a stretcher and carried to a spot where the atmosphere is free from smoke. His clothing is loosened and a blanket is thrown over him. Oxygen is then administered. When the victim is able to swallow a stimulant may be given. Aromatic spirits of ammonia, Hoffman's anodyne, or, best of all, hot coffee should be administered.

Whisky is not a good remedy for smoke cases. It tends to prolong the nausea and to aggravate the headache. A fireman who is a whisky drinker stands smoke poorly. He is a danger to himself as well as to others working on the fire ground. Ambulance surgeons should never give whisky to firemen.

If a fireman is brought from a building and is not breathing, every second counts. Such a case as this is the test of the fire surgeon, or a test of whether those under him have been properly instructed in first aid. The victim is cyanotic. The mouth may be open, or on the other hand the teeth may be tightly clinched, necessitating a mouth gag to open the mouth. The pulse is weak and small, often imperceptible. As soon as the victim is brought to the street loosen the clothing, open the mouth, pull the tongue out, clear the throat of mucus, tobacco, false teeth, etc., and start artificial respiration. If the air is too smoky he must be removed to a clearer atmosphere.

While artificial respiration is being given he should be covered to the waist with a blanket. Place a blanket for him to lie upon. Have a stretcher nearby so that as soon as respirations have been established he may be removed to the nearest hospital. Never allow a person who is not breathing to be placed in an ambulance to be taken to a hospital until every attempt has been made to establish respirations by artificial means. A person who might be saved if artificial respiration is administered at once may be lost if he is put in an ambulance and driven many blocks to a hospital.

Such a patient should be kept in the hospital for at least 24 hours, and may then be allowed to go home providing there are no complications or sequelae. Bronchitis, or even bronchopneumonia may ensue. The eyes are badly irritated and blue glasses must be worn for several days. Headache is relieved by means of an ice cap to the head and the administration of bromid of soda.

It is not my wish to enter into a controversy over the relative merits of the modern appliances for giving artificial respiration. Suffice it to say that at present we are using six lungmotors in the Philadelphia police and fire departments.

FRACTURES

Fractures are common injuries to both the police and firemen. The policeman often suffers a fracture of the jaw through a pugilistic encounter with an obstinate prisoner. Two firemen suffered from fractured jaws as a result of the fire apparatus upsetting. Other firemen have suffered fractured jaws by being caught beneath falling walls. For the first-aid treatment of fracture of the jaw we teach the application of the four-tailed bandage.

Fracture of the skull is not an uncommon injury to both police and firemen. The police and firemen are taught the significance of bleeding from the nose, throat or ear following a severe injury to the head, and are instructed to treat the patient as for shock with the exception of slightly elevating the head, and are further instructed to place cotton in the victim's nostrils and ears to minimize the danger of contamination of the cerebrospinal fluid if a fracture exists.

Fracture of the collar bone is, strange to say, very unusual. For the first-aid treatment we teach the application of a posterior figure-of-eight of the shoulders, bandaging the arm to the chest and the placing of the forearm in a sling.

Fractured ribs are common, especially to firemen. Until the chest can be strapped with adhesive plaster we apply a firm roller bandage.

For fractures of the forearm, including Colles' fracture, we carry in the police and fire emergency kits a Levis splint. A splint 24 inches long and 4 inches wide is also carried on the patrol wagon and on the fire trucks; this may be used in the first-aid treatment of fracture of either the upper arm or the forearm.

For severe injuries to the spine and for fractures of the thigh great stress is laid upon the manner of lifting the injured and his transportation. For splinting the thigh or leg a splint 4 feet, 6 inches long and 6 inches wide is carried in both patrol wagons and fire trucks.

Fracture of the patella is by no means an uncommon injury to the men of both bureaus. I have one fireman who has fractured one patella once and the other patella twice. In some of these cases the patella has been wired or sutured. In other cases the fracture has been treated on an Agnew splint. The cases treated by the splint method have equally as good functional result as those treated by operative measure. In one case of a refracture of the patella of one of the mounted patrolmen Dr. Francis Stewart put a bone transplant into the patella. The result was excellent.

Pott's fracture is the fracture most common to firemen, and results usually from faulty landing mats at the bottom of the sliding poles.

SPRAINS AND DISLOCATIONS

The ankle is by far the most frequently sprained joint. Faulty landing mats are the main cause of the injury. In order to prevent traumatic flat foot or in the treatment of acquired flat feet we recommend, besides exercises for the muscles of the feet, a shoe with a rigid shank, countershank and Thomas heel. This shoe has given great satisfaction.

Sprain of the knee, associated with synovitis, is a common injury to both the police and firemen, especially the latter. Our general plan of treatment is an ice bag for 24 to 48 hours, followed by the application of a plaster of Paris cast for one or two weeks and then massage to the quadriceps, baking of the knee, and the application of a pure gum elastic bandage.

Rupture of the plantaris muscle should be known as policeman's leg, so common is it in that department. In 1915 there were ten cases. Practically every one injured was a heavy patrolman and usually the injury was sustained while the officer was chasing some corner loungers shooting crap. The history in practically every case was the same, a sudden pain in the calf of the leg which the officer always attributes to one of the boys having struck him in the leg with a stone.

Dislocations are not frequent. Of the few which I have seen in the department dislocation of the shoulder is most common. I have had two dislocations of the acromioclavicular joint, dislocations which were most difficult and obstinate to treat.

ELECTRIC SHOCK

Electric shock to police and firemen is not a common injury. Occasionally, however, a fire truck becomes charged with electricity while at a fire and a whole company of firemen receive a shock. This is caused by the contact of the extension ladder with an overhead wire. It is more apt to occur in cold weather when ice freezes over the ladders and over the truck, the ice-covered ladders being good conductors for the electricity.

INJURIES TO THE EYES AND EARS

The eyes of the firemen are frequently injured, usually by hot cinders and by the irritation of smoke. This subject is mentioned principally to warn ambulance surgeons against using cocain to remove foreign bodies from firemen's eyes while working at a fire. If it is imperative to use cocain the fireman should not be allowed to return to the fire, as the cornea is made insensitive and a subsequent hot cinder or hot smoke may cause a severe ulcerative keratitis.

Rupture of the ear drum by a stream of water from the fire hose is an injury common to firemen.

NERVOUS AFFECTIONS

It cannot be said that the policeman or the fireman is a nervous type of individual. Traumatic hysteria and neurasthenia are rare. I believe one reason for this is the general good health of the men and I believe the other reason is that litigation can play no part in their injuries. They, of course, receive full pay while off duty and the manner in which they receive their injuries allows no grounds for litigation.

Civil service commissions should pay more attention to the physical examination of the applicants for the police and fire departments and less to the applicants' knowledge of history and higher mathematics. A policeman or a fireman should be a broad, deep-chested, muscular individual, not a "high brow with nerves."

I can recall one unusual case of probable hysteria in the fire department, that of a hoseman who, while on his way to his first fire, took off his fire helmet and rubber coat, jumped off the apparatus, and has never as yet returned to the engine house.

The firemen have one nervous peculiarity. After an alarm of fire has been sounded if their company does not respond practically every man in the company will immediately have a desire to urinate.

TRAUMATIC HERNIA

Hernia is very common in the Fire Department. I venture to say that 20 to 25 per cent. have been ruptured. This is caused by heavy lifting, by driving a "pulling" three-horse team while strapped around the abdomen to a seat, by climbing, and by the constant use of the sliding pole. I have seen several cases of the true traumatic hernia, with its accompanying severe pain, nausea, vomiting and collapse, from lifting sections of hose. A fireman will roll up a section of hose and then lift it to his shoulder. If there were a rule that two firemen should carry a section of 2½-inch hose as they carry a section of high pressure hose there would be fewer hernias.

FIRST AID INSTRUCTIONS

The police and firemen, in their respective training schools, are given a thorough course in first aid to the injured. They are instructed in the treatment of fractures, both simple and compound, and the treatment of fractures of individual bones, and the method of transportation of one suffering with a fracture. They are instructed in the different classification of wounds, including the dangers and characteristics of each class of wounds and the treatment of each; in venous, arterial and capillary hemorrhage, with the treatment; shock and its treatment; asphyxiation from smoke, smoke impregnated with poisonous fumes and asphyxiation from illuminating gas; the causes of convulsions and treatment; the local and constitutional treatment of burns and scalds; electric shock and strokes by lightning; the effects of heat and cold, including frost bite, sun stroke, heat exhaustion, etc.; the first-aid treatment of sprains and dislocations; the dangers and treatment of foreign bodies in the eye, nose, throat and ear; the treatment for poisons; the characteristics of unconsciousness due to head injury, hysteria, opium poisoning, alcoholism, apoplexy, etc., and the treatment of each; and the method of transportation of the injured.

Some of the men have performed excellent service in first aid. Some of these cases were reported by letters of commendation to the chief of the fire department, who in turn forwarded these reports to me:

A woman overcome by smoke was resuscitated by Hoseman Alfred Broadbent, Engine Company 14.

A woman asphyxiated by illuminating gas was resuscitated by Hoseman James P. Sullivan, Engine 27.

A drowning boy was resuscitated by Lieut. S. J. Howard, and Hoseman William Fleming, Engine 12.

A Lieutenant of Engine 11, asphyxiated by illuminating gas, was resuscitated by Hoseman M. J. Dowling and C. A. Gill of his company.

A Lieutenant of Engine 32, asphyxiated by smoke, was resuscitated by Hosemen Quirk and Schmidt of Engine 32.

A woman asphyxiated by illuminating gas was resuscitated by Hoseman H. Hoffman, Engine 25.

Driver S. C. Waterman, Pipe Line No. 2, dressed and applied splints to a compound fracture of bones of both legs in an accident case occurring at Twelfth and Olive Streets.

Driver C. M. Palmer of Truck No. 3, applied splints to a compound fracture of a leg, suffered by a woman in an accident case at Germantown Avenue and Norris Street.

Laddermen James McKee and C. J. Nealis, Truck 16, applied a splint to a fracture of the leg in an accident at Aramingo and Huntingdon Streets.

Lieutenant Thompson and Driver Waterman of Pipe Line No. 2, applied a splint to a fracture of the leg suffered by a boy while playing football.

Fireman H. L. Becker, Engine 57, applied a splint to a fracture of the forearm suffered by a girl from a fall.

Driver H. T. Gaul, Jr., Engine 23, applied an improvised tourniquet to the arm of a man who had his hand partly severed by a band saw.

Fireman John Ashton, Engine 36, applied an improvised tourniquet to leg of man run over by a trolley car.

Ladderman F. Rutherford, Truck No. 4, asphyxiated by smoke, was resuscitated by members of his company.

Patrol Sergeant Jacob Tryon resuscitated, with the use of the lungmotor, a man residing at 2656 East Ontario Street, who had been overcome by illuminating gas.

Patrol Sergeant Stocker, Twenty-Eighth Police District, successfully used the lungmotor in resuscitating two cases of illuminating gas poisoning.

There are many other cases which have come under my observation, but which I have failed to record.

The present enthusiasm over first aid may wane somewhat, especially with those who have undertaken the subject because of fad or fashion. The recent movement, however, in first aid will be of great benefit. The "safety first" movement has undoubtedly reduced the number of accidents in many industrial plants, and the recent Workmen's Compensation Act has taught not only municipalities, but industrial plants and manufactories the importance of physical examination and medical supervision of their employees.

2046 Pine Street.

DISCUSSION

ON PAPERS OF DRS. HILEMAN AND OWEN

Dr. J. B. Carnett, Philadelphia: Dr. Hileman and Dr. Owen are both to be commended for the active part they have taken in advancing the doctrine of first aid. Unfortunately it is not often possible to have at the scene of accident the surgeons, ambulances, pulmotor, stretchers and the various other equipment described by Dr. Owen as being sent out with the

Philadelphia fire fighters. The fact that more than a million serious accidents occur each year in the United States urgently demands more widespread knowledge of first aid. A great many lives have been saved each year by the prompt application of first aid and many more could have been saved had the principles of intelligent first aid been more generally known.

It has been urged against the universal teaching of first aid that "a little knowledge is a dangerous thing." It is no doubt true that in exceptional instances first-aid teaching when perversely applied may lead to meddlesome surgery or even to disastrous results. For instance, all surgeons having an active accident service can recall patients coming to the hospital with a tourniquet improperly applied. It had been used in some cases where it was not needed; in others, it was applied too loosely with consequent increase in venous bleeding; and in other instances it was applied too tightly or over too long a time, with damage to nerves or other soft parts. The harm done by the tourniquet or Spanish windlass thus malused, however, does not begin to offset the great saving in life by the proper use in the hands of laymen. With better training in its method of application and the indications for its use the harmful results will be largely eliminated. Again I recall the case of the captain of a sailing ship who had learned to use the clinical thermometer. One of his sailors developed a perforation of a duodenal ulcer while in port at Philadelphia, but the captain wrongly interpreting the absence of fever insisted the sailor was a malingerer and did not summon a physician for forty-eight hours, at which time operation proved futile. Such deplorable instances, due to deficient knowledge, fortunately, are rare and are overwhelmingly counterbalanced by the great number of lives that are saved by intelligent first-aid attention.

Much potential harm might be averted if the writers and teachers on first aid to the general public would confine their instructions absolutely to the period of time not exceeding two or three hours from the receipt of injury. It will be very rare indeed that a physician cannot be obtained within that period of time, and the application of first aid in serious injuries should be clearly restricted, as emphasized by Dr. Hileman, to tiding over the interval till the physician arrives. Many of the books on first aid go beyond this and attempt to instruct the layman in the course he is to pursue if a physician is not available for several hours or days. For instance, the majority of first-aid books describe the heel-in-the-axilla-extension method of reduction of a primary shoulder dislocation. This certainly is entirely beyond the province of first aid and, owing to the layman's inability to make a correct diagnosis and to exclude fracture in a shoulder injury, his misdirected efforts at reduction of dislocation might easily result in serious harm.

For the very small percentage of individuals who are going to regions remote from a physician, special books or courses of lectures can be prepared to supplement the regular instructions in first aid. The administration of drugs and the application of antiseptics are attended with too much risk to be included in routine first-aid courses, but postgraduate instructions in the emergency use of some of them might be imparted to a few responsible shop officials who have shown themselves cool-headed and trustworthy in first aid in real emergencies. First aid, which thus far has been taught chiefly by the National Red Cross, military and municipal organizations, boy scouts and various corporations, has proved of such vital and practical value that it should henceforth be included among the subjects taught in the public schools,

Dr. William Francis Skinner, Chambersburg: One of the first principles in applying treatment to all wounds is that we must remember that nature is the best healer and, if not interfered with too much, in her own way and in her own time she will bring about a reasonably good result. That is, I feel that it is as important to know what not to do for wounds as it is to know what to do. Many persons have a routine application to all wounds and injuries which I think is wrong. As an example, the application of peroxid of hydrogen, bichlorid of mercury, particularly the smearing of wounds with a favorite prescription of some ointment, is undesirable and should be avoided. I know of nothing, it seems to me, as a routine for application to wounds as detrimental as the smearing of a wound with an ointment from an open box. It is true there are certain ointments such as sterile vaselin from a collapsible tube, or sterile olive oil may be poured on the dressings that may serve a good purpose as an emollient to prevent the dressings from adhering to open wounds.

With reference to burns generally, whether they be scalds or charred burns, a good rule to follow is the washing of the parts with castile soap and warm water, using pledgets of cotton for the removal of foreign matter and then applying the normal salt solution, heavy dressings of gauze and parchment paper. I have had but little experience with picric acid treatment because the results with my method have been so satisfactory. The parts have cleansed themselves so well and new granulating tissues have sprung up so rapidly I have had little reason to change from normal salt solution yet. In regard to punctured wounds, and in these we might include gunshot wounds, a safe rule is to convert them into an incised wound, then to mop out thoroughly with spirits of turpentine, drain with gauze and little else need to be done, unless we are not certain that the particles of foreign matter have been taken from the wound and then it has been my custom to use an antitetanus serum. I have never seen tetanus develop in wounds when the serum was given early. On the other hand, I have seen only a few cases of tetanus in which the patients recovered when the serum was given late.

Dr. A. W. Colcord, Clairton: I want to say a word on applying the tourniquet. The tourniquet must never be made tight enough to stop hemorrhage, only the spurting from the wound, and when spurting is stopped the tightening of the tourniquet must be stopped. The other hemorrhage must be stopped by direct pressure on the wound. I have the men practice with the finger on the pulse, which will stop at about the same pressure that the spurting would stop if the arteries were touched. Then I teach that there are but two places on the body where the tourniquet should be applied, above the elbow and above the knee.

I think first-aid teaching to the laity gives us an opportunity to teach them what they ought not to do: never to put fingers that are not clean in the wound or burn; never to put the foot in the axilla and pull a dislocated shoulder. About three fourths of my instruction is devoted to what should not be done. In treatment of wounds, I place the iodin treatment as the best for the roadside, in the private house, hotel, anywhere outside the hospital. In emergency hospital work I believe the constant wet dressing is the best. In a thousand cases of which we have kept records, we have proved the value of this treatment over the iodin. As to the saturated solution of boric acid and three fourths alcohol, we put it directly to the wound and apply plenty of cotton, which is put on to filter further applications of the solution. With plenty of cotton filter, the patient can have the solution poured on every three hours. During five years in several thousand cases we have not had a primary infection. One of the most important things we can teach first-aid classes is the handling of compound fractures. The men should be taught how to handle the patient without causing more injury, how to do it quickly, how to pick him up and get him to a place of safety. I believe that is the most important thing we teach our first-aid classes, next to teaching what ought not to be done.

Dr. Edward Martin, Philadelphia: Anyone who has to deal with these emergencies will be struck by the simplicity, the directness and the sound common sense of the papers of Drs. Hileman and Owen. They apparently tell us little, but they tell us practically all there is to know. The emergency which is commonest is not the fatal hemorrhage, or the discrimination between uremia, apoplexy, heat exhaustion or sun stroke, which is done so surely in books for the laity and which we ourselves find so difficult, but it is the avoidance or management of infection. To the credit or discredit of the profession, there is no concerted view as to how infection should be treated as an emergency, excepting that everyone believes the washed or unwashed fingers should not be thrust into a wound. There is no generally accepted emergency dressing. Even were there it would be useless unless the laity were properly trained in its use. For instance, an intelligent slopman, having cut his hand, applied for help to a postman who, applying to the raw surface a fairly fresh quid of tobacco he was then chewing, secured this in place by sterile gauze and bandages.

There are believers in iodin, in hypertonic salt solution, in bags of salt, in Dakin's solution, in normal salt solution, in potassium permanganate, in Harrington's solution, and in many other usually mildly antiseptic, nonirritating washes. Because of the experience gained in industrial surgery, it would seem that those specializing in this work might satisfactorily standardize practice at least in regard to two matters: first, the ideal first-aid package to give to the layman who receives instruction in its application; and second, the ideal immediate treatment on the part of the layman or physician of the lacerated, contused or devitalized wound. Such wounds in great steel plants are often not largely infected. Such wounds contaminated by street dirt are always infected.

Dr. John B. Lowman, Johnstown: The Medical Society of the State of Pennsylvania has a Committee on First Aid appointed. It is working in conjunction with the National Committee of which Dr. Bloodgood is chairman. Dr. Francis D. Patterson, Dr. Hileman and myself are on the committee in this state. We sent out to the industries of the state questions on the proper treatment and solution to use. This is being compiled at the present time and we are supposed to make a report at this meeting. What the results have been of this investigation I am not able to say as Dr. Patterson has that in charge.

THE BEGINNINGS AND NEEDS OF PHILADELPHIA IN POSTGRADUATE MEDICAL STUDY *

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PHILADELPHIA

Systematic "postgraduate" teaching in Philadelphia medicine is an evolution from "supplementary" clinical and laboratory teaching organized in 1880 "outside the walls" of the medical colleges of the city. In that year Drs. H. Augustus Wilson and J. B. Roberts advertised a "Postgraduate Course in Surgery, Diagnostic, Practical and Operative." The class, limited in number, was instructed in surgical diagnosis, pathology and treatment and allowed to perform operations on the cadaver, on eye, nose, throat and genito-urinary organs, as well as the ordinary procedures of general surgery. The instruction included also lectures on mechanical surgery, the diagnosis and treatment of fractures and application of spinal jackets, splints and apparatus for the relief of deformities. The course thus definitely arranged for graduate *physicians* was given at The Philadelphia School of Anatomy (for practical medicine and surgery) at 1022 and 1024 Hunter Street, Philadelphia.

The undergraduate courses in that winter (1880-1881) in that school had pupils for lectures on anatomy 87, dissection 63, operative surgery 49, bandaging and fracture dressings 42, postgraduate 7. The undergraduate classes were made up of students of medicine, of dentistry and of artistic anatomy.

The characteristic of the annual undergraduate teaching at that time was five months didactic lectures, clinical demonstrations in amphitheaters, and carelessly supervised dissections in anatomical laboratory. Recitations to professors were practically unknown, except at the Medical School of the University of Virginia. "Quiz" associations had therefore arisen in Philadelphia medical schools. These were organized by young graduates who, for fees received from anxious students, held recitations on the lectures of the seven scheduled branches of the college course. Sometimes these quizzing organizations became a little more progressive and in addition to quizzing gave didactic instruction on topics not treated systematically by the professor.

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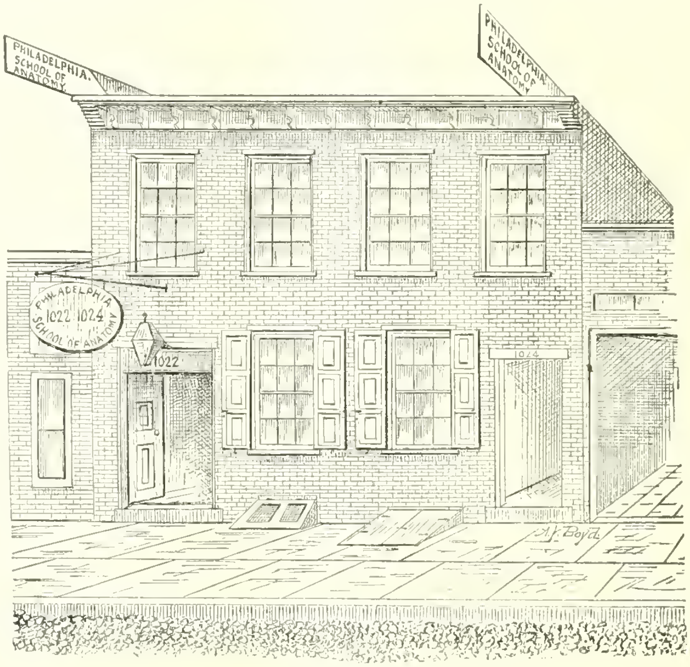
* Read before the Philadelphia County Medical Society, Dec. 27, 1916.

For many years previous to my student life, there had existed in Chant Street, formerly College Avenue, east of Tenth Street and in the rear of St. Stephen's Church (which still stands on Tenth Street below Market) two small buildings called The Philadelphia School of Anatomy. Here from 1820, when Dr. Lawrence opened it, was a dissecting room for teaching practical human anatomy, and incidentally operative surgery. Lawrence called the school The Philadelphia Anatomical Rooms. This name about 1839 was changed to The Philadelphia School of Anatomy. This building with many others was removed in 1875 to prepare the site for the present United States Postoffice. The Medical School of the University of Pennsylvania on Ninth Street above Chestnut Street, and the Jefferson Medical College on Tenth below Chestnut Street were in the vicinity. The unincorporated institution under the name given by Lawrence, and that afterward assumed, namely, The Philadelphia School of Anatomy, had a long succession of private teachers as lessee or owner. Among them, as Dr. W. W. Keen records, were D. Hayes Agnew, James E. Garretson and Keen himself.[1] In this school I was taught anatomy and surgery by Keen; and quizzed by him, O. H. Allis and Henry Leffmann and their associates on surgery, anatomy, chemistry and the others of the seven branches taught in the lectures of the Jefferson Medical College faculty.

Before the federal government in 1875 destroyed the building Keen gave up private medical teaching. Dr. J. M. Boisnot then opened a dissecting room and a lecture course in anatomy in another small building in the same street and became possessed in some manner of the large wooden signs from the dismantled school just relinquished by Keen. About two years later Boisnot induced the Rev. H. S. Hoffman to secure money to erect a building for anatomical teaching on Hunter Street west of Tenth Street. Hunter Street was just one block north of Chant Street, on which Keen's Philadelphia School of Anatomy had stood.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The Philadelphia School of Anatomy, 1022 and 1024 Hunter St.

The old signs, "Philadelphia School of Anatomy" ornamented the cornice of this two story brick building, in which there was a lecture room with raised seats in tiers on the first floor and a well lighted and satisfactorily aired dissecting room above. Dr. J. M. Boisnot conducted this school (which he termed Philadelphia School of Anatomy) and taught anatomy; while Dr. James M. Barton gave practical instruction in surgical operations on the cadaver. Dr. Roberts in 1879 bought out the signs and anatomical paraphernalia of Boisnot for about

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[1] See History of the Philadelphia School of Anatomy, by William W. Keen, in Library of the College of Physicians.

$100, and taught anatomy, while Barton for a year or two continued to teach surgical operations. Later Roberts bought from Dr. W. W. Keen for $20 the right to use the lithographic stone from which Keen's Certificates of Attendance were printed. Thus he became a sort of successor to the name, Philadelphia School of Anatomy; and issued to his pupils in anatomy the Keen certificate of attendance illustrated with Rembrandt's familiar picture of Tulpius demonstrating anatomy. In the autumn of 1881 the Postgraduate Course of the Philadelphia School of Anatomy was enlarged by the addition of lectures and demonstrations on physiological and clinical chemistry by Henry Leffmann, general and physical diagnosis by J. T. Eskridge, operative obstetrics and gynecology by William H. Parish, diseases of the eye and ear by H. Augustus Wilson, microscopic anatomy by Henry Leffmann, and venereal diseases by Charles W. Dulles.[2]

The next year a lectureship on diseases of the throat and nasal passages was added with Charles E. Sajous in charge. This made a postgraduate department of nine courses with Roberts as dean. This postgraduate teaching included clinical work in hospitals and dispensaries with which the teachers had connection. A reading room well supplied with current medical journals from all parts of the United States and from Canada added to the educational advantages of the pupils; and compends of some of the subjects taught were published as convenient books of reference.

The pupils in the undergraduate and postgraduate courses during the year, consisting of spring and winter sessions, numbered 150 to 200.

In 1882 several of the men connected with this practical "supplementary" medical school, namely: Leffmann, Wilson, Roberts, with the aid of R. J. Levis, Thomas G. Morton, Jacob Solis-Cohen, Charles K. Mills, James C. Wilson, A. Van Harlingen, C. H. Burnett, Edward L. Duer, Frederick P. Henry, George C. Harlan and J. H. C. Simes, organized, and later incorporated, March 19, 1883, The Philadelphia Polyclinic and College for Graduates in Medicine. R. J. Levis was president; Henry Leffmann, treasurer; John B. Roberts, secretary. The charter was obtained by Messrs. William H. Redding, J. Levering Jones and Hampton L. Carson, a firm of young lawyers.

Drs. Cohen, Leffmann and Roberts leased personally the building at the southeast corner of Thirteenth and Locust Streets, opposite the Hall of the College of Physicians. The Polyclinic trustees assumed control of the building after the institution was incorporated. Dr. C. J. Seltzer, the recently deceased laryngologist of Reading, was the first pupil physician of this polyclinic postgraduate school. A larger building was leased at the northwest corner of Broad and Lombard Streets about three years later. In 1889 the Polyclinic bought the ruins of the Caledonia Mills on the south side of Lombard Street above Eighteenth from Mr. David Milne and erected the first building of the present group.

At the present time, on the south side of Naudain Street in the rear of the enlarged main hospital building with its laboratory, isolation and mortuary buildings, are the power house, the laundry, the nurses' home and the ambulance garage.

The Philadelphia School of Anatomy as a distinct entity disappeared with this transfer of the interest of its teachers, though Dr. L. W. Steinbach, an assistant in the anatomical and surgical courses and also in surgery at the Polyclinic, continued teaching in the anatomical rooms of the Philadelphia Dental College for a number of years, still using its certificate and the name of the Philadelphia School of Anatomy.

Later the Philadelphia Dental College combined with the Medico-Chirurgical College; and some time afterward became the dental department of Temple University. The name Philadelphia School of Anatomy was used for the anatomical rooms of this dental school, I believe, until 1906.

At the time the Philadelphia Polyclinic and College for Graduates in Medicine was organized the University of Pennsylvania already had some postgraduate teaching going on at its undergraduate school. The Jefferson Medical College, when the Polyclinic scheme was announced, started a postgraduate course. Both the university and the Jefferson efforts were, however, given up a year or two later.

This account will show, therefore, that the first systematic and sustained effort to establish postgraduate teaching in Philadelphia arose, as so many other movements in medicine have arisen, from extramural teaching of students who were matriculated in the large medical schools of the city.

It may also be interesting to mention that Dr. Keen, whose Philadelphia School of

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[2] See Announcements of Philadelphia School of Anatomy and of The Philadelphia Polyclinic and College for Graduates in Medicine in Library of the College of Physicians of Philadelphia.

Anatomy was (through Roberts' subsequent proprietorship) the parent of the movement which led to the foundation of the Philadelphia Polyclinic itself, became the professor of surgery in Jefferson Medical College and has been for years a consulting surgeon of the Polyclinic. Further, Dr. S. Weir Mitchell, whose experiments on rattlesnake venom were carried out in the Philadelphia School of Anatomy when Keen possessed it, became a trustee of the University of Pennsylvania and for several years was a professor of nervous diseases in the Philadelphia Polyclinic. No bad showing was this, it would seem, for the small anatomical hall in a back street. It owed its very existence to support from fees paid by industrious medical students desiring extramural instruction similar to that received by the founders of medical teaching in the United States at the University of Edinburgh in the latter part of the eighteenth century.

The Polyclinic teachers also supplied much of the active movement in Pennsylvania by which the Medical Society of the State of Pennsylvania succeeded in obtaining in 1893 a state examination and license. The medical act of 1893 was recently supplanted by the law creating the Bureau of Medical Education and Licensure.

To accomplish the widest results in aftergraduation education, our medical societies and medical schools must secure mutual cooperation, combine academic institutions with municipal, state and semiprivate hospitals, and finally correlate these agencies with the state Bureau of Medical Education and Licensure and the municipal and state departments of health. Individual citizens able to give adequate financial backing to civic enterprise must be encouraged to see the importance of medical education to the public weal and to civic business prosperity.

The Medical Society of the State of Pennsylvania and its component county medical societies have the whole problem before them for solution. It is not likely that either the Philadelphia County Medical Society or the state society will be inactive. Most of the movements which have resulted in elevating the ethical and professional attitude of Pennsylvania's physicians have been either started or been energetically advanced by these organizations.

The State Board of Health which preceded the present State Department of Health, the state examination and licensing of physicians, the acceptance of woman physicians to professional parity with men, advanced requirements in undergraduate medical colleges, the exclusion of advertisements of secret nostrums from professional journals of good report; clinical teaching and study at county society meetings, and instruction in clinical surgery at small hospitals have been obtained and developed largely through the initiative and the activity of committees of the county societies of Pennsylvania and its state medical organization.

Postgraduate teaching needs patients, pupil physicians and teachers. The greatest of these needs is the teacher. A single real teacher, with one pupil and one patient may become a postgraduate school. A man may be a learned physician or surgeon, he may have a wide reputation for skill as a practitioner; yet if he have not the teaching instinct he will be of little value as a member of a postgraduate faculty. The worldwide reputation of Chicago and of the state of Minnesota as meccas for postgraduate instruction in surgery has been made by two men—Murphy now dead, and Mayo still living. Ability to teach is as truly a definite quality of mind and manner as is the creation of poetry. The frequent failure in the teaching chair of distinguished men, men renowned in medical literature, research or hospital organization, is witness to this fact. Medical schools, undergraduate and postgraduate, like Sunday schools, have in the past often confided instruction to any one willing to assume the rôle. The result has been equally discouraging in both spheres of education.

An instructor's ability may be increased by affording him opportunity to improve. This is attainable in medicine by providing him with patients in a hospital and notifying the medical profession that pupil physicians are desired. Few things stimulate members of a hospital staff so much as the presence of other medical men when they examine and treat the patients under their care. The critical eye of professional friends does much to lessen careless or hasty hospital practice; it awakens a lively sense of responsibility. Philadelphia in particular and the whole state of Pennsylvania need to open every hospital, large or small, to postgraduate study.

An essential to good hospital care is discontinuance of the short term service of members of attending medical and surgical staffs. Many American hospitals change the physician or surgeon on duty every three months. This is a bad system. It works hardship to the nurses, the interns, and the patients; and lessens the interest in and fidelity to the ward service on the part of the attending medical officer. No successful business man would think of changing the chief of a department every ninety days. Pride in one's work, fidelity in its performance and efficiency in results cannot be insured by such hospital organization.

To develop fair postgraduate teachers then out of the usual material to be found in the profession, and to cultivate intensively the ability of the man who is born a teacher, demand that this city and state offer hospital positions for continuous periods of service. This means that after the unfit, the indifferent, the too busy have been weeded out, those who give promise of a spirit of faithful and efficient service must be given control of a fair number of patients, and be allowed to appoint, train, and discipline a sufficient corps of subordinate medical graduates.

It is important to add that this form of organization gives the best treatment to the sick and injured who come to the hospital for relief. None but doctors and nurses realize thoroughly the dangers and oversights brought to the sick and injured by the oscillatory term of service and a vicious hospital system which permits junior medical officers to be free from a sense of responsibility to the chief.

A hospital to be used for postgraduate or graduate instruction and indeed any hospital to be efficient must have, to meet emergencies. a resident medical officer, who has previously seen service in a hospital in a junior position. The usual American practice of leaving an active hospital for hours, even, at night in charge of interns just out of the medical school is offensively erroneous in theory and abominable in inefficiency. Boards of trustees who permit such an organization are as responsible to the public as are those who permit such a hospital to have untrained young physicians act as anesthetists without experienced supervision.

A need exists in Philadelphia for courses of instruction in the work and duties of hospital interns and in the proper conduct to insure success in private practice. In the early years of the medical life, the juvenile physician sadly lacks the qualities formerly obtained from the premedical months and vacation weeks spent in a medical preceptor's office. The present institutional contact cannot take the place of individual contact with an older man who is in the midst of professional duties.

The hospital resident physician of today and the young practitioner outside the hospital often fail to show those fine qualities which constitute a satisfactory junior medical officer and a gentleman physician. Training in deportment, punctuality, record keeping, and efficiency must be a part of the postgraduate teaching of young graduates. It usually requires Annapolis and West Point to make first rate officers and gentlemen for the Navy and Army. Some similar training is essential in our Pennsylvania hospitals and medical schools. The law of this state has provided for inspection of hospital teaching of interns; and hospital internship is demanded of every recent medical graduate seeking a license to practice.

If Pennsylvania is to attract the best teachers in the country, its universities and colleges must have large endowments. Successful business men and wealthy citizens with civic pride should provide endowments by gifts and legacies. The University of Chicago has recently benefited greatly by an energetic organization of a great medical school for postgraduate as well as undergraduate study. Its citizens have given millions, its medical institutions have seen the value of combination; as a result, large sums from outside the state have been added to its available assets. Philadelphia must do likewise. Pittsburgh is becoming too earnest in medical matters to permit delay here. Minnesota has for a number of years past attracted surgical pupils from every quarter of our country, because one man had the wisdom to concentrate power, pay his associates and assistants fair salaries, and devote thought to the development of effective team work in surgical practice. Divided interests, selfish conservatism, and scientific complacency can never win against a trained, well-led and faithful team of wide awake and satisfied workers. What is true in baseball and football is true in medical teaching. A scrub lot has no chance against a well-led loyal team.

After cooperation of institutions and sufficient endowment have been secured, it is important that progressive action should be taken in the organization of the teaching required by medical graduates. The report of our Committee on Postgraduate Teaching of the Committee on Medical Education of the Medical Society of the State of Pennsylvania printed in the November number of the JOURNAL contains several valuable suggestions on this point. It states that review courses, such as are understood when one speaks of postgraduate, polyclinic, or practitioners' courses, are needed by nearly all physicians at about five-year intervals. Graduate work in the university sense is necessary for one who desires to specialize as a professional teacher, a consultant or a research worker.

The first class of men, which is the more numerous, probably will be able to review subjects sufficiently in six weeks to six months, each quinquennial period. True graduate study, however, should extend over two or three years and should be followed by the conferring of a special degree; for example, Master of Surgery, Doctor of Ophthalmology. A certificate of attendance, however, is a proper acknowledgement to be given the practitioner in a polyclinic school who takes clinical or laboratory courses for a review.

The first essential in both classes of teaching is efficient teachers. A second requirement is sufficient clinical material in hospital wards and dispensaries to enable the teacher to illustrate methods of diagnosis and show the results of new and even old methods of treatment. Such teachers should replace inefficient, indifferent or too busy members of staffs. There should be a reasonable permanency of official position and some remuneration for the time of service required in meeting and instructing pupils.

It would add much to the reputation of the city and state if all the hospitals in them were made teaching hospitals with a staff built up in the way mentioned. The intern service should consist of at least one chief resident physician serving for not less than two years, who should receive sufficient salary and be given sufficient responsibility and opportunity to make the position valuable. Under him should be a corps of assistant interns, each receiving after the first three months small salaries gradually increasing to the end of a year's service. This salary should be in addition to the usual board, lodging and laundry. In some hospitals it would be wise, perhaps, to have extern physicians, or dressers, living outside the hospital, but serving as aides to the assistant interns for a large portion of every day.

Much would be gained in the treatment of patients, in expedition of operations, in record keeping and laboratory examinations, if practitioners of two or three years' standing were admitted to residence in some of our Pennsylvania hospitals to act as voluntary interns. They would be willing, and should be required, to pay a fee for the privilege of such intimate connection with an active hospital. This sort of postgraduate work would soon become popular, if recognized as a part of the system of postgraduate teaching. Interns, assistant interns and pupil physicians, after sufficient instruction and experience, should be allowed to operate on patients as first assistants or under the immediate eye of a member of the staff.

Both postgraduate and graduate schools could enlarge their facilities by awarding prizes or establishing teaching fellowships with salaries, by perfecting arrangements to encourage pupil physicians to visit medical centers to see the work of specially eminent authorities, and by organizing extension courses in other than their own cities. In North Carolina something has been gained by establishing in connection with a university and a medical society postgraduate medical circuits. In these the physicians of certain localities receive on the same day for ten or fifteen successive weeks instruction in medical topics from teachers who travel from one city to another. Such lectures, of course, are paid out of a fund raised directly or indirectly by the organizing society or university.

Medical societies can do much to cooperate in the postgraduate movement in our profession by arranging good programs, sometimes with members or speakers from outside, and by publishing practical papers in an official medical journal. This society and our state society should organize study classes, and stimulate men on hospital staffs to give clinical instruction and accept pupil physicians in ward, laboratory and operating rooms. Much good teaching can be found and large opportunity for observation obtained, if the members of the profession in this state and city will leave their homes for two weeks every year and reside in one of the smaller towns where an active man has a continuous hospital service. South Bethlehem, Wilkes-Barre, Hazleton, Johnstown, Sayre, Chester, Altoona, Scranton, Harrisburg, Erie, Danville, West Chester, are the names that suggest themselves to me at this moment.

Philadelphia as a medical center cannot expect to keep abreast of the active forces in other states, unless it quickly arouses interest on the part of its public men and the members of the medical profession in advancing cooperative work among medical schools, hospitals and physicians.

The Bureau of Medical Education and Licensure, organized by the state, is a powerful lever to improve and standardize hospital management. The state also gives large sums of money for maintenance of hospitals under state care and to those of semi-private character. These factors are all available, if the medical societies will use their efforts to bring them into a great cooperative effort. Pennsylvania can only keep abreast of other states by immediate action in this direction. So far as Philadelphia is concerned, it probably will make little difference whether the combined influences for medical education result in the establishment of one great university, such as is seen in Massachusetts, Minnesota, Missouri and Illinois, or whether the Baltimore system is adopted in which there are two universities, each providing a valuable and sufficient education for undergraduate students, though on somewhat different lines. The citizens of Pennsylvania could, presumably, furnish without the aid of outside forces a sufficient endowment for two or perhaps three universities, one of which would naturally be situated in Philadelphia by the combination of various schools, the other in Pittsburgh by an amplification of the medical school of the University of Pittsburgh. It would seem quite possible for educational institutions, situated even as far apart as are the cities of Pittsburgh and Philadelphia, to combine in an affiliation or a merger. Philadelphia perhaps has sufficient scientific and literary talent to provide teachers for two university medical schools, and competition is often a stimulus to good work, but a vast sum of money as an endowment would be required to duplicate a proper plant for graduate, postgraduate and undergraduate teaching. I scarcely believe that can be done.

313 South Seventeenth Street.

THE AMBULANCE OF THE AMERICAN HOSPITAL OF PARIS AS SEEN BY A SURGEON *

LEVER F. STEWART, M.D.
CLEARFIELD

As a matter of interest it should be known that the American Ambulance Hospital of Paris is a military hospital established by the American Hospital of Paris. The parent institution is a modern, complete, attractive, hospital of about 35 beds for the use of Americans, of whom there are in normal times about 90,000 in Paris. At the beginning of the great war it made known its desire to help care for wounded French soldiers, and the French government provided it with the Lycée Pasteur, an institution then in course of completion that was to be a school for children. This institution, really a group of connected buildings, ideally constructed and situated for a hospital, was rapidly completed and with improvements made from time to time stands today a magnificent hospital, complete in every detail, that will accommodate over 600 soldiers.

This hospital is managed by the American Ambulance Committee which in addition maintains about 150 automobile ambulances at the front operated by American men who bring the wounded from the "Postes des Secours," just behind the trenches, to the hospitals farther back from the lines. In addition, the committee operates a train known as the Train Sanitaire de l'Ambulance Americaine. This train carries the wounded from the evacuation hospitals at the front to the permanent military hospitals in all parts of France. Further, to complete the chain from the front to our hospital, additional automobile ambulances are maintained in Paris to convey the wounded from the railroad stations to the American Ambulance Hospital as well as other Parisian hospitals.

The above described organization to most of us would seem quite complete, but Dr. Hutchinson has independently gone a step farther, providing auxiliary hospitals to which convalescent patients are evacuated.

Each one of these units, so to speak, ambulance cars, sanitary train, and auxiliary hospitals, are deserving of brief individual description as they have done so much to make the ambulance hospital itself something to which Americans, and especially American surgeons, look with pride and the whole world looks with admiration. The latter is attested to by visits of the greatest surgeons from all over the world.

THE AUTOMOBILE AMBULANCES

The cars in use for ambulance work are Fords and Buicks. The Buicks are of use for city work, but the products of the exponent of peace have proved more practical for field work. Regardless of the make of the car, the bodies placed on them are of uniform make. Each car carries four stretchers or eight sitting cases. The reason for the uniformity in structure of ambulance bodies will be readily seen when you consider that all stretchers are of the same size and structure. Thus any stretcher fits in any car.

Generally the bodies of the cars resemble those of our delivery cars. A cross seat is in front for the driver and one or two others if necessary. At the driver's back is a partition; behind this, the car is covered over top with

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* Read before the Blair County and the Jefferson County medical societies.

canvas but sometimes the wooden structure of the side is continued as the roof. There are double rear doors and a step to enter. At the center of the carrying part of the car are standards, one being placed at either extremity. These support two grooves or tracks on either side, two tracks are at the bottom of the car and the other two half way between top and bottom. There are corresponding grooves on the side walls at the same levels. With this arrangement stretchers can be slid into the car after engaging their forelegs in the tracks. Other cars have chains for suspending the stretchers but these are not so satisfactory. Also on either side of the car is a longitudinal seat which is folded upward when stretchers are carried or, if hauling men able to sit, the seats are left down and thus four men can sit on either side of the car. On the outside the cars are painted gray and on the inside white. They are easily kept clean, and the wounded ride with considerable comfort. Transportation in these ambulances is only for short distances to hospitals or trains.

THE TRAIN

There are about 1,000 sanitary trains in France, most of them are quite rough, being hastily assembled. The American train occupies the distinction of being the best in France. It consists of thirteen cars, eight are for carrying of stretcher cases and one car has the unique distinction of being fitted as an operating room, complete in every detail for any kind of surgery. The other four cars are for the use of the personnel and the carrying of supplies. The personnel consists of two American surgeons, the manager of the train, also an American, the "medicin chef" (a Frenchman) and thirty French soldiers. These soldiers carry the wounded into the cars, look after their ordinary needs, attend to the cooking and serving, and keep the train in order.

The cars for the wounded are well-finished box cars, four of them carrying 36 stretchers each and four carrying 24 stretchers each. All of these cars have a compartment for keeping blankets and other necessities. Inside, the cars are painted gray and have a clean and cheerful appearance. They have wide sliding doors and a few windows. The centers of the cars are occupied by standards for the holding of stretchers. One of these standards may be likened to two telephone poles, each one having three cross bars. The lower and upper bars on each pole are of equal distance from the middle one. The two poles are connected by a long longitudinal bar of a length a bit short of that of a stretcher. This connecting bar is placed at a level a little below that of the middle cross bar. The lowermost cross bar at each end of the standard is separated from the floor only by an iron spring somewhat similar to the ordinary buggy spring. This is necessary for the comfortable riding of patients and indeed relieves them of the usual jolting one gets on railroad cars. As you probably judge from the description each standard and stretcher rack carries six stretchers, three on each side, one above the other, resting on the cross arms. Here you will again see that the uniform size in stretchers is necessary. These stretcher racks are so arranged that they are of equal distance from each other and the sides of the car. With this arrangement one can minister to patients from the side, head, or foot of the stretcher.

The loading of the train is done by lifting directly from ambulances or, most often and by far more convenient, from platforms built of a level the same as the cars. As a rule one stretcher can be carried from the platform and placed on a rack in the car by two men, the handles taken by one man at either end of the stretcher.

In this connection I cannot refrain from mentioning another means of transporting the wounded on stretchers for short distances as from an evacuating hospital to the train. What I have reference to is a two-wheeled cart having, instead of a straight axel, an axel that is bent directly upward to the height of the wheel and curved across between the wheels. This makes it possible to run the cart over a stretcher and fasten the stretcher to longitudinal supports, one of which is fastened to each wheel on the inside. The supports also serve as handles with which to push the cart. Unloading the cart is very simple. One end, the one with the handles, is rested on the ground, the stretcher is unhooked and the other end is allowed to come to the ground and is then unhooked. The cart is then pulled from over the stretcher.

When the train is loaded the surgeons proceed to record the condition of each patient. These records are kept on slates, one slate for each car. Each stretcher is given a number under which is recorded the location of the injury, what diet is suitable for the patient, whether he has had antitetanic serum, when he had his last dressing, and his general condition. Dressings and antitetanic serum of course are unnecessary considerations for those who are ill instead of injured. These, however, are rare exceptions. Each patient is given in his evacuation hospital a "fische de blessure" or card telling whether he has had antitetanic serum, what his injury is and what has been done for him. This the patient keeps until he is finally placed in a permanent hospital where permanent records are kept. In most cases dressings are applied just before the patients are put on the train and if their journey is a short one it is unnecessary to change dressings en route. However, uncomfortable dressings, soiled dressings, those that smell badly, and those that have not been done recently are always changed on the train. Further, all men with open injuries who have not had antitetanic serum are given immunizing doses (incidentally American antitetanic serum is considered to be of inferior quality in France). Those patients who are in pain are given morphin. This is not often necessary but it is freely used on the slightest indication and unquestionably conserves the strength of the wounded soldier in traveling.

Here is where one sees the evils that may result from the improper use of plaster of paris. The French are masters in the use of plaster and their plaster is superior in quality to our own. A favorite way of fixing open fractures is by gutter casts. These are made by unrolling bandages on a smooth surface and rubbing them together so that a plaster slab of sufficient size to surround about three fourths of the surface to be immobilized is made. This is then molded to the part (often directly next to the skin) and held in place by a few turns of the bandage at different places. Between the places where the turns are made the skin frequently swells and after some hours causes the usual extreme pain. Releasing the plaster casts is a common task on the train. Another and admirable method of using plaster is the placing of the usual circular plaster above and below the site of injury and bridging the gap over which the injury extends by two or preferably three iron rods bent in such a way that they are incorporated in the cast on either side of the wound though bent far away from the wound itself either by a graceful curve or an abrupt right angle. These braces resemble handles and can be used as such in lifting the part; further, they are placed so that when the part rests on a bed or stretcher it does not permit lateral motion. These dressings have been frequently described since the war began and are admirable for transportation in cases needing frequent change of dressing which can be done without disturbing the fixation of the part. See Cut 1.

Generally, excepting for transporting of the wounded, in open fractures plaster must be condemned as it frequently conceals extending infection and pressure sores and occasionally causes gangrene by pressure. Another method of fracture fixation seen on the train is the metal fracture box. These boxes resemble in principle the Philadelphia fracture box and are used for both arms and legs. They belong to the French government, and when the patient reaches his destination the hospital authorities return them to the front. These boxes are made of a light sheet metal. These splints are safe, practical, serviceable, and approach the ideal.

The completeness of the train will be appreciated when I mention the operating room car. This is complete, containing all instruments, dressings, towels, sheets, gloves, antiseptics, sterilizers, etc., needed in the modern operating room. It is finished in white and has a good operating table. In this car also are kept the drugs, a liberal assortment, most of which are anodynes, and the antitetanic serum. Here also are kept the baskets used in carrying materials for doing dressings. These are stocked in the operating room car and sent into the stretcher cars. One compartment of this car is used as a sort of diet kitchen, distinct from the train kitchen which is situated in the rear of the dining car. The operating car is placed in the middle of the train so that it can be conveniently reached from the stretcher cars. All cars communicate with each other; one can walk from one end of the train to the other without leaving it. However, when necessary to bring patients to the operating car, where one can work with about the same facility as in the average operating room, the train is stopped if it happens to be in motion and the stretcher is carried from its car, along the side of the train, to the operating car. At night it is exceptional on walking through the cars to find even one patient awake. They all ride comfortably and sleep well, though, as I have said, anodynes are occasionally necessary. The final touch toward the perfection of the train was being arranged when I last was on it. There was to be a system of telephones between the cars.

The train when it reaches Paris, if that is its destination, is always unloaded by our ambulance drivers. I have seen them unload 240 patients in twenty minutes. They, as well as all other Americans who have given their services for this work, pride themselves on doing it well.

At the stations the authorities have a list of hospitals with beds available for patients and the patients are allotted to them, some going in our ambulances and some in French and other ambulances. The patients are not moved from their stretchers from the time they leave the evacuation hospitals until they are bathed and put to bed in the permanent hospitals they are assigned to. This is made possible by the trains trading empty for loaded stretchers at the evacuation hospitals. Our train is maintained at a cost of $30,000 a year to Americans.

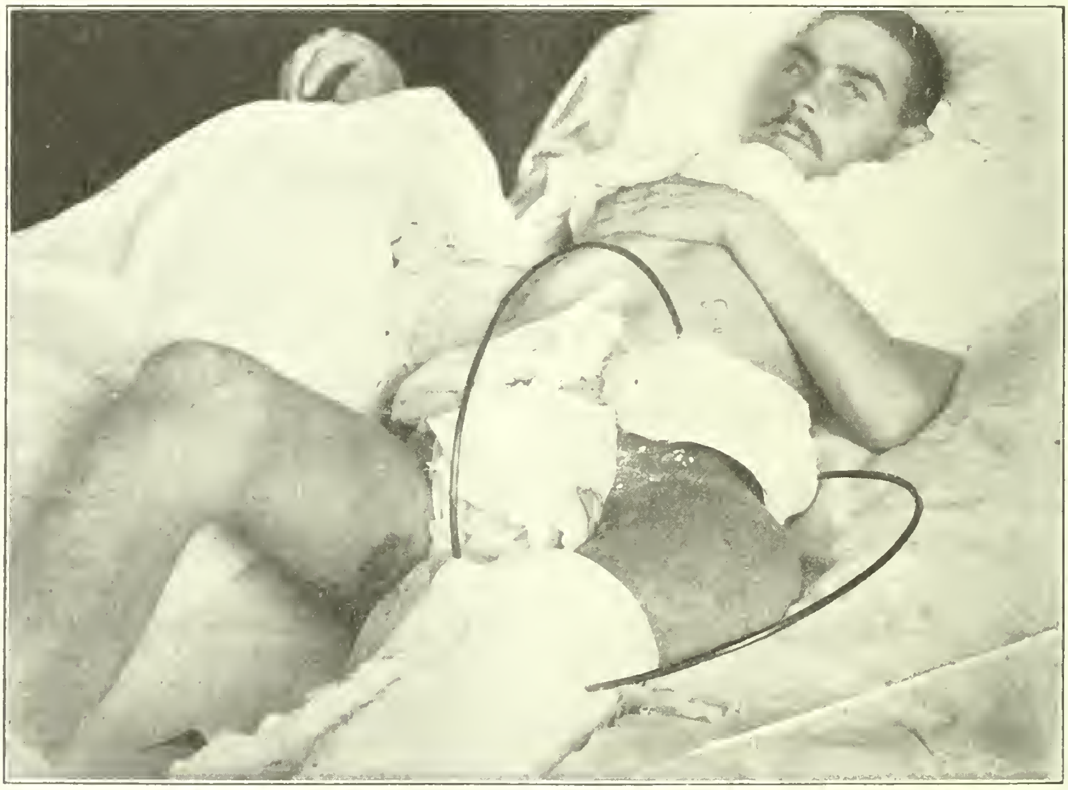

Fig. 1.—Showing transportation cast that has been cut.

THE HOSPITAL

Being a hospital in which the people speak a language different from the native language of those serving in it, and being a military hospital, has of necessity called forth arrangements unsuited to our own civil hospitals but necessary and admirable for the American Ambulance Hospital.

The work of interpreting and in general all unskilled assistance is done by auxiliaries: ladies of leisure of all ages who work under the direction of doctors and graduate nurses. These ladies, most of whom are not in the habit of receiving directions as to what they should do, are untiring and faithful in their work. They rigidly adhere to the hours of their work. They report promptly in the morning and remain on duty until the end of the day. Many of them unused to work have been doing this since the establishing of the hospital, over two years ago. Too much cannot be said in praise of their ability and devotion to their work. Most of the ladies are Americans who have lived in France some time, a few are English, and a few are English-speaking French people.

The work done by the auxiliaries might be divided into three classes: (1) Ministering to patients under the direction of the nurses. (2) Taking histories (detailed story of the way wounded) of the patients and presenting them to the house surgeons who in turn dictate to them the result of their examination of each patient. In addition they accompany the house surgeons on their visits to the patients and make additional notes on their progress. As a result of this plan the records of the patients including their treatment and progress are as good as any and better than most that I have seen. (3) Acting as "cart nurses." The dressing of wounds is done with materials carried in carts which are wheeled from one bed to another. Some knowledge of asepsis is necessary for this work and this is quickly grasped and effectively done by the cart auxiliaries.

A department of the hospital of peculiar interest and great practical value is the dental department. Here not only the teeth of all of the wounded soldiers are attended to but, what is more important, appliances are made for maintaining the teeth and jaws of the soldiers, receiving wounds of the jaws and mouth, in good position. On admission to the hospital plaster casts of the faces of the dental cases are made and then after repair of the defects by the surgeon with the assistance of the dentist, another cast of the reconstructed face of each soldier is made. The results are astounding and reflect great credit on both surgery and dentistry. In patients who have lost practically all of their mandibles, the reconstruction of the face by the surgeon over the apparatus made by the dentist is well beyond one's imagination.

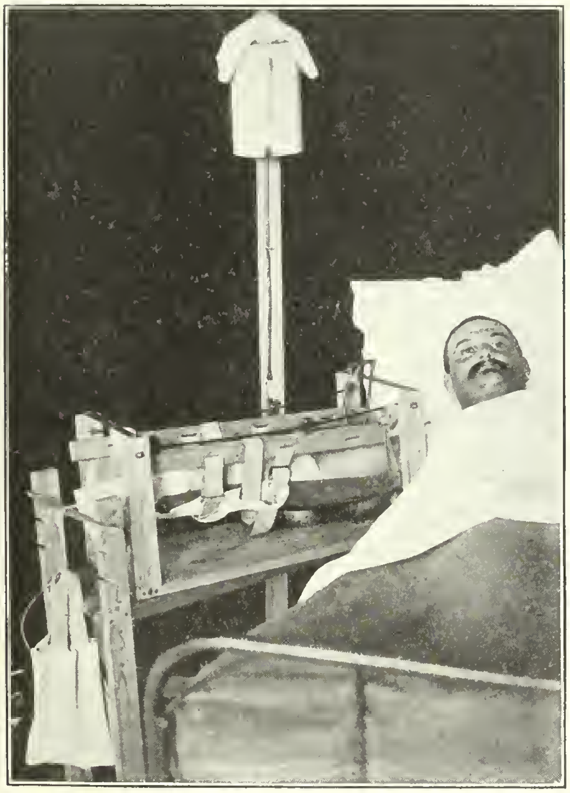

Fig. 2.—The "arm cradle."

Another department not unusual to our orthopedic hospital at least, but decidedly unusual on account of the work done, is the apparatus department. On account of the unusual character of the wounds and the large number of open fractures, many apparatuses have become necessary for the handling of these cases. This department is also in charge of an auxiliary, an artist, whose knowledge of surface anatomy and mechanics has enabled her under the direction of the physicians, to have built in her shop, which is situated in the hospital, all of the apparatuses necessary for use on the patients in the wards. Though most of the apparatuses in use are not in principle new, many of them are new to most of us and are the products of the minds of those working at the hospital.

For injuries of the body nothing different from the appliances ordinarily used by us is in use. The new and interesting apparatus is for injuries of the extremities. One of the simplest apparatuses is the cradle used for fractures of the forearm or leg with extensive flesh wounds and suppuration. The one for the forearm is nothing more than an oblong wooden box placed alongside of the bed. From the corners of it emerge four standards and between the two standards on either side run supports of wood at a level of about one meter above the bed. Into these, hooks are screwed and by these a splint of desired shape is suspended. These splints are usually angular and rubber covered to avoid soiling. They can be so suspended that the hand is higher than the elbow and the elbow higher than the shoulder. See Cut 2; similar to apparatus described but more complicated. The different cuts show the different forms of apparatus in principle. In many instances the details shown in the cuts do not correspond with the description given. This is due to the fact that I have described the apparatuses as the majority prefer to use them, though different men have their preferences for details. The leg cradle is similar excepting that the four standards emerge from a plank which is placed on the bed. In this apparatus a canvas or rubber swing is used to suspend the leg. In order to avoid moving the fractured limb when dressing it, trap doors are placed directly beneath the wound in all of these splints and swings, when it is necessary. An addition to the cradle is a perpendicular standard emerging at its distal end. The foot can be fastened to it in order to keep it at a right angle. Further, if necessary, Buck's extension can be applied to emerge from this end. All of these apparatuses are practical for wounds with or without fracture.

Practically all of the rest of the apparatuses for the bed treatment of these fractures make use of the "overhead" frame which, of course, is well known to us all. Arms are surrounded by binders which are fastened above to longitudinal pieces of wood of a length the same as that of the arm with the width of the binder corresponding. All of this is suspended from the overhead by ropes, pulleys, and weights. This is called the "scarf dressing." See Cut 3. On the same principle "gutters" of either plaster or wire net, covered with rubber are suspended with the arm lying in them. In this type of dressing extension after the principle used in Buck's extension can be applied to the forearm suspending it at a right angle to the arm and in addition extension can be applied at the elbow using a figure eight bandage or the principle of Buck's extension. Finally the personification of simplicity is reached in fractures of the forearm both as concerns apparatus and ease in dressing by merely applying extension after the principle of Buck's extension below the site of fracture and suspending the arm by it; using the weight of the arm for counter extension. See Cut 4. A refinement of great use to avoid stiffness of the fingers in these extension cases is provided by fastening with elastic cords to the under surface of the wooden extension block a handle that resembles the swinging perch seen in the ordinary bird cage. This is placed just within reach of the fingers and can be grasped, thus giving exercise to the fingers. When wounds do not permit of adhesive extension, cuff extension is used. Under similar circumstances the anklet or shoe extension can be used in leg cases.

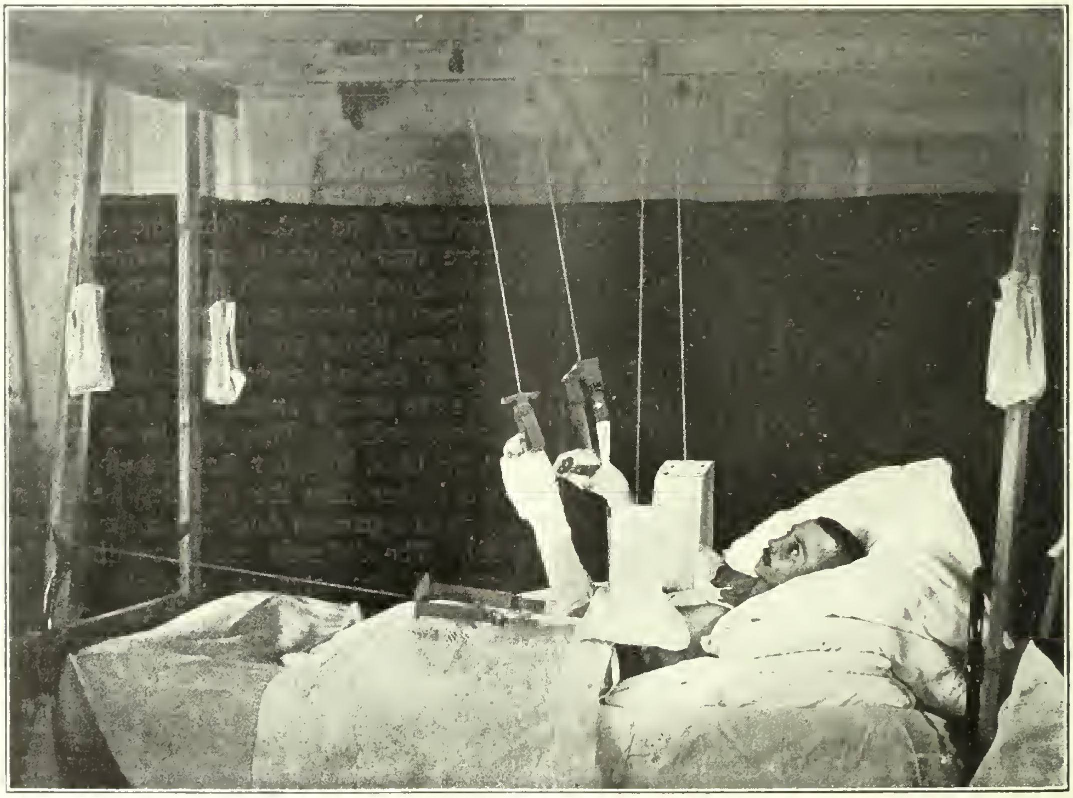

Fig. 3.—The "scarf dressing" for the humerus.

For the thigh or knee the ordinary principle of the double inclined plane is used, but more often the frame attributed to Thomas and many others is used. This frame is made of two lateral steel bars, preferably bent at a slight angle at the knee joint, with padding at either upper end that fits firmly against the symphysis on the inner shorter side and the ileum on the outer side. At the lower or distal extremity these rods approach each other after passing the region of the foot and are connected by a wooden bar. At intervals these rods are held apart by horseshoe shaped bands of steel which circle over the upper or anterior surface of the leg. Into such an apparatus a floor or gutter or rubber-covered wire netting is fastened. It may have trap doors if necessary. However, the most satisfactory flooring is made by placing so as to overlap each other, pieces of canton flannel about 10 to 15 c.m. wide in the middle.

tapering at both ends; to one of these ends a buckle is attached. These supports are of varying length, depending on what is needed. They are placed beneath the thigh or leg, brought up over the lateral steel strips one end on either side and the ends are brought together beneath the leg and buckled. By using these overlapping supports one can remove those necessary for dressing and still keep the leg in the apparatus; further, by tightening some of the supports he can mold fragments and get some flexion in the knee joint. To the leg the usual Buck's extension is applied, the rope emerging through a central hole in the wooden cross bar. An essential refinement to this apparatus makes use of buckles fastened laterally on the foot side of the cross bar. To these tapes sewed to the extension strip on either side of the leg are buckled, thus there is a counter extension made that keeps the symphysis and ileum pads firmly against the body. One must watch these and tighten them as the Buck's extension lengthens the leg by overcoming muscular contraction. One more attachment to the apparatus is sometimes useful; a steel rod may be run anteriorly connecting the horseshoe-shaped anterior cross rods. From this a binder surrounding the thigh may be supported; it is used to mold fragments. This whole appartus is swung off the bed by ropes, pulleys, and weights, attached to the overhead frame. In this apparatus the foot is kept at a right angle to the leg by pasting a piece of canton flannel to the sole of the foot with a thin film of carpenter's glue and suspending it by rope and pulley from the "overhead." This is a suggestion of Dr. Keating. See Suts 5a and 5b.

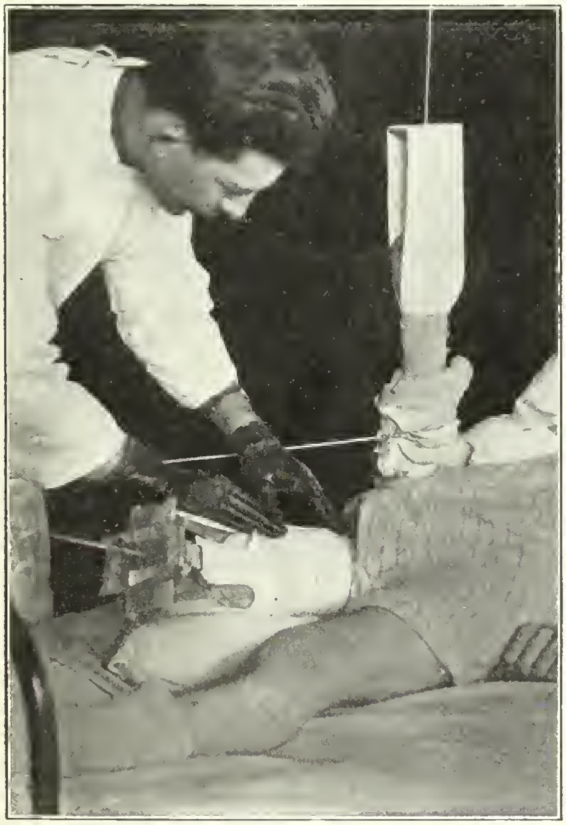

Fig. 4.—Forearm extension. Arm extension, Buck's extension for flaps.

The method of fastening canton flannel strips by carpenter's glue is used for extension and suspension in preference to adhesive plaster. It is easier to work with, sticks better, and does no more damage to the skin.

The apparatus for the ambulatory treatment of leg cases is not unusual and comprises the usual assortments of splints, braces, and shoes.

For the ambulatory treatment of arm cases two most ingenious apparatuses are used. Both follow the principle of the "aeroplane," which I shall describe first. One better understands the instrument when told something of the way in which it is made. In the work shop a frame is made that has two steel strips that conform to the ribs of that side of the chest on which is the injured arm. One strip passes beneath the axilla and the other at the margin of the lower ribs. These strips are connected by a steel rod placed so as to ascend to the axilla. At this point another steel strip is fastened by a hinge joint. This last mentioned rod or strip is the length of the arm; at its lower extremity is a sliding joint that connects with a strip or rod the length of the forearm. From the region of the elbow to the perpendicular strip that holds the two first mentioned strips, runs another strip made in two sliding parts with a set screw. By this the arm can be elevated or lowered merely by loosening the set screw. This frame is fastened to the body by incorporating it in a plaster cast made to extend from just above the hip joint to the axilla with a strip running across the opposite shoulder. Before the cast hardens it is cut anteriorly and also over the shoulder strap, removed, and permitted to dry. Following this, buckles and tapes are placed at the cut edges by rivets and the whole plaster portion of the apparatus is padded and covered with gray serviceable material. Zinc sheet gutters are fastened to the arm and forearm strips and the apparatus is ready to be buckled on the patient. (It is admirable for fixation of the arm in almost any position desired.) See Cut 6.

The other apparatus has the same sort of body frame applied in the same way but the arm fits between two steel strips or shafts of a length greater than the arm and meeting in a circular curve. Erected on these shafts at the level of the elbow joint is a similar perpendicular pair of shafts of a length greater than the forearm. The injured arm in this apparatus is dressed by support crossing beneath the rods the same as in the leg apparatus of similar construction. In addition, extension can be applied to the arm and fastened to the circular end of the shaft by strong elastic rubber. In the same way the forearm can be suspended at a right angle to the arm. Using this same principle of keeping the arm between the two steel braces the arm and forearm can be put in practically any position. Dr Levya is responsible for the development of this apparatus. See Cut 7.

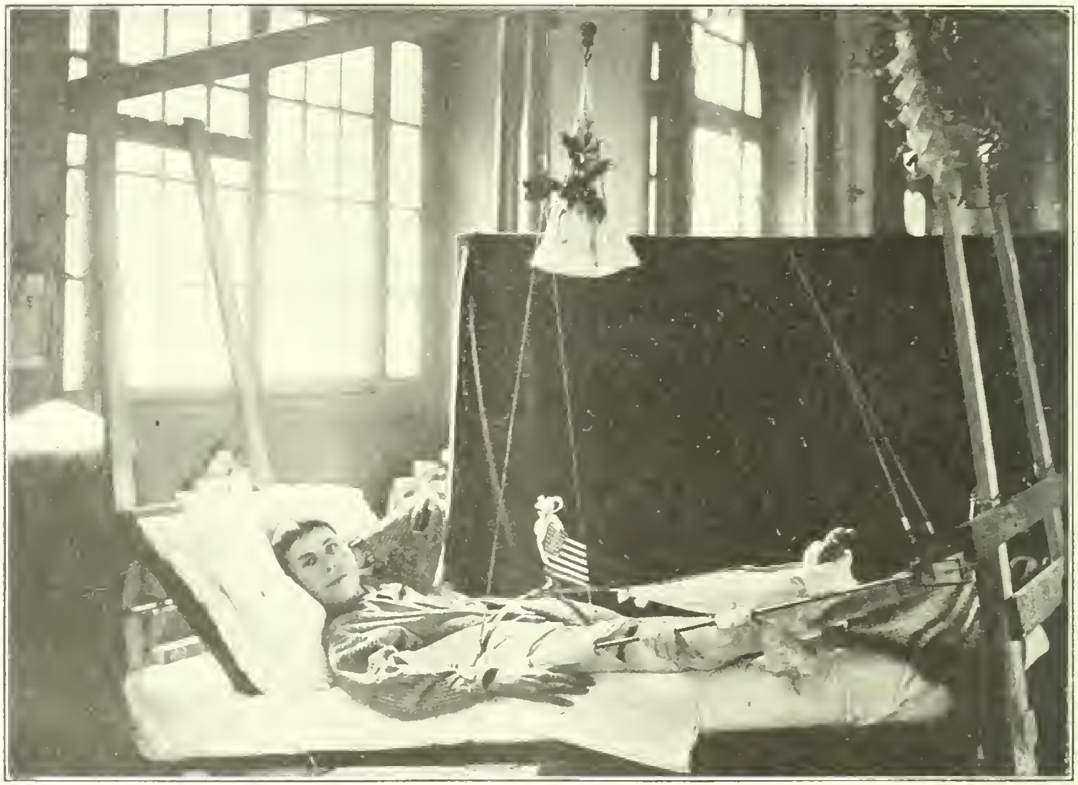

Fig. 5a.—The "overhead frame" suspending the so-calledThomas splint.

A refinement in apparatus or dressing is made use of for drawing together gaping wounds. Hooks such as are on the ordinary lace shoes are riveted into adhesive or canton flannel. These are made to adhere to either side of the wound and then drawn together by lacing with tape. See Cut 8. A Buck's extension is used for the same purpose. See Cut 4.

Before leaving the discussion of the hospital I would like briefly to describe the principle of two instruments for finding foreign bodies and tell something of the organization of the work by Dr. Hutchinson with whose service I had the pleasure of working. All of our hospitals could well adopt the method of discharging patients to auxiliary hospitals and following them afterward.

The simplest and best instrument for finding foreign bodies is the "vibrator" of Bergonié. This is an electrically operated, leather covered, pestle-shaped instrument, about 50 cm. in length, suspended from a crane-like wooden standard. The principle of vibration is the same as in the vibrator we see in the average barber shop excepting that this has a magnetic attraction that causes magnetizable foreign bodies to vibrate in the tissues. When the vibration is started, watches, hemostats, and similar materials vibrate actively. Of course it is necessary to get them out of the way when operating the machine. By placing the fingers on the skin between the vibrator and the region of the foreign body a tremor or vibration is transmitted to the fingers. The part at which the vibration is greatest is the point to which the foreign body is closest. This instrument is of no use for locating such metals as lead or copper.

The other instrument is the Marion localizing apparatus. This apparatus is made to duplicate the way in which Roentgen-ray pictures of the foreign body are taken from two points, showing the intersection of shadows of the foreign bodies. In the Roentgen-ray laboratory the Roentgen-ray tube is placed 60 cm. above the table on which the patient lies. A previous Roentgen-ray picture is at hand. From this a point is selected on either side of the foreign body and the Roentgen-ray tube is placed directly over these points in turn by the use of a plumb bob and the two exposures are made on the same plate. Then the two points selected are indelibly marked on the skin and the distances of these points from the table are measured. After developing the plate it shows two impressions of the plumb bob and two

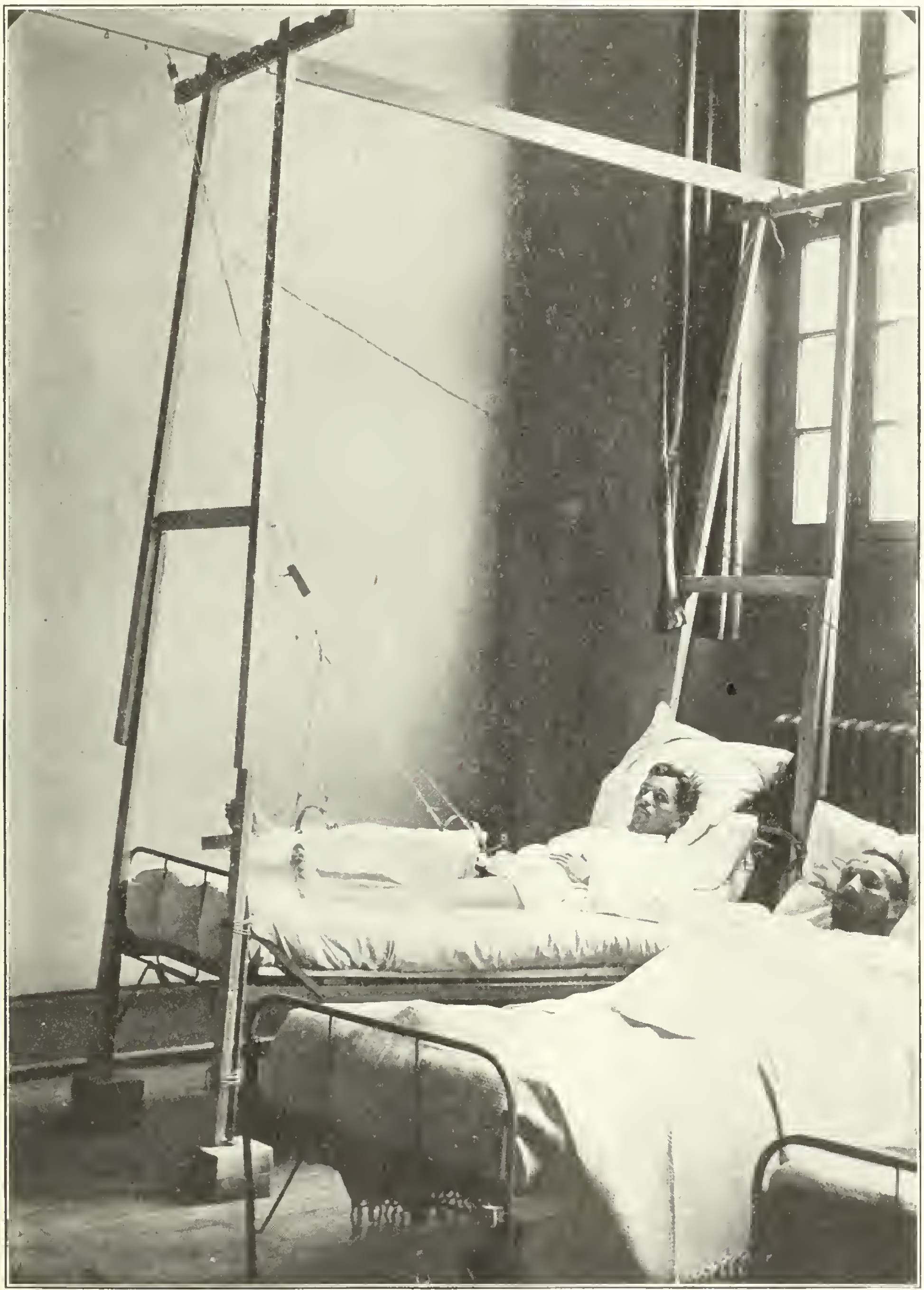

Fig. 5b.—Same as Fig. 5a.

impressions of the foreign body. The distances the two plumb bobs are from the table are marked on the plate, the centers of the two foreign body shadows are marked, and the plate is ready for the Marion apparatus. The plate is placed on the table of the apparatus 60 cm. beneath its top, duplicating the position and circumstances in which the roentgenogram was taken. Two cords fastened to the top are placed directly over the plumb bob points. On this direct line arms are thrust out from the rear standard of the apparatus at the same distance from the plate as the points on the skin were from the table on which the patient lay. Then the two strings are drawn to the foreign body shadows, one to each shadow so that they cross each other. The point at which the strings cross is the point at which the foreign body is located in the tissues. The shadows on the plate being markings of continuations of the interrupted tube rays from the foreign body to the plate. From the same standard holding the arms in the relative positions of the two skin points a third arm is brought forth and made to point at the exact intersection of the strings. The distance of this point below the level of a line drawn between the other fixed points shows the depth necessary to incise in locating the foreign body in the tissues. The arm supporting these fixed points is then lifted from the apparatus and placed on the body, the two indelible points on the skin being covered by the two fixed points lying on the lines of the plumb bobs. The third fixed point then points directly to the foreign body.

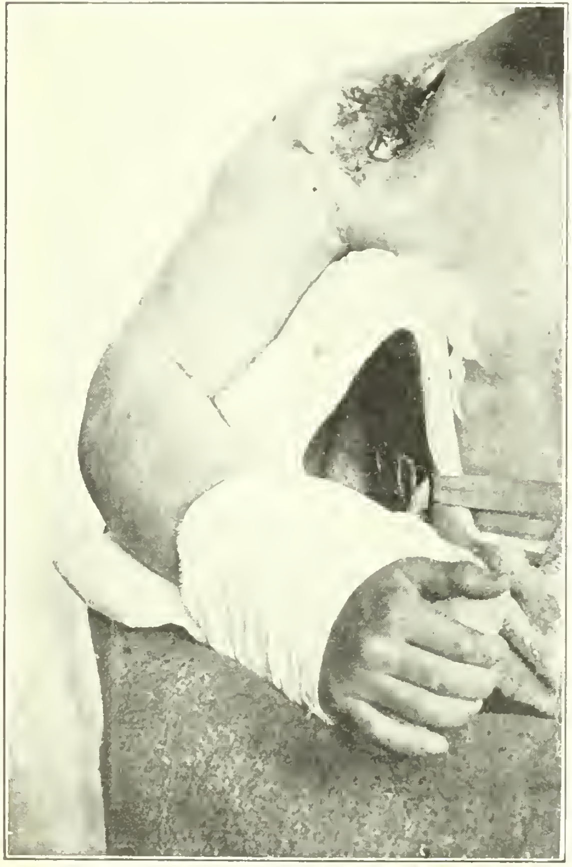
Fig. 6.—The aeroplane.

Another instrument invented by Marion for locating foreign bodies, of which work he does an enormous amount, is a so-called "telephone." This I have not seen, but there is a connection between finger and ears and when one is near the foreign body there is a message in some way transmitted to the ear.

THE AUXILIARY HOSPITALS

No patients are discharged directly from the hospital, but when convalescent they are sent to auxiliary hospitals which are products of the efforts of Dr. Hutchinson, and have been developed by him, and are situated in the country close to Paris. They are delightfully appointed hospitals presided over by French sisters experienced in nursing. Some of them accommodate as many as 120 patients. Some are well equipped with electrical apparatuses and apparatuses for the treatment of ankylosis. Others have experienced masseurs and in one large hospital the services of a good neurologist are available. Still another has a good operating room staff. With this sort of equipment certain

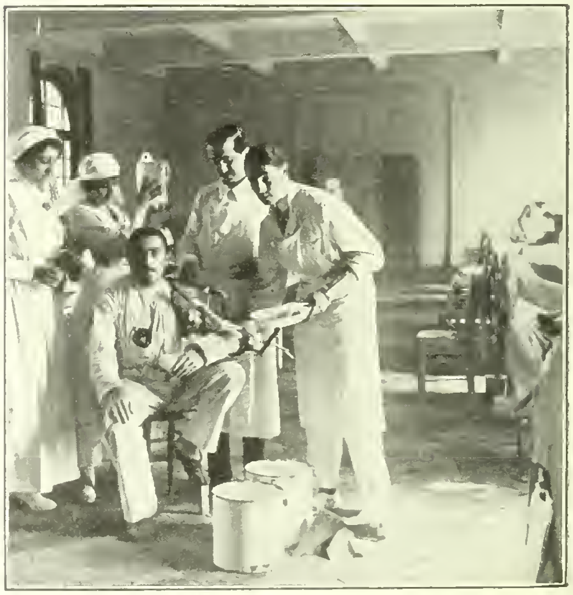
Fig. 7.—The Levya apparatus (modified aeroplane).

cases are evacuated to certain hospitals where the special treatment needed can be given. All of these hospitals are situated where there are spacious grounds and piazzas affording abundant opportunities of getting fresh air for the soldiers.

These hospitals are visited once or twice a week by Dr. Hutchinson and all of the cases carefully watched. About once a week the different hospitals send on different days all of the patients to the office of Dr. Hutchinson at the Ambulance Hospital where he dictates his observations on their progress. At these times necessary Roentgen-ray plates are taken and if advisable the men are readmitted to the Ambulance Hospital for operation. In this way it will be seen that the patients are followed until they become chronic and they are readmitted to the Ambulance Hospital for any chronic surgery needed. This arrangement can be readily appreciated.

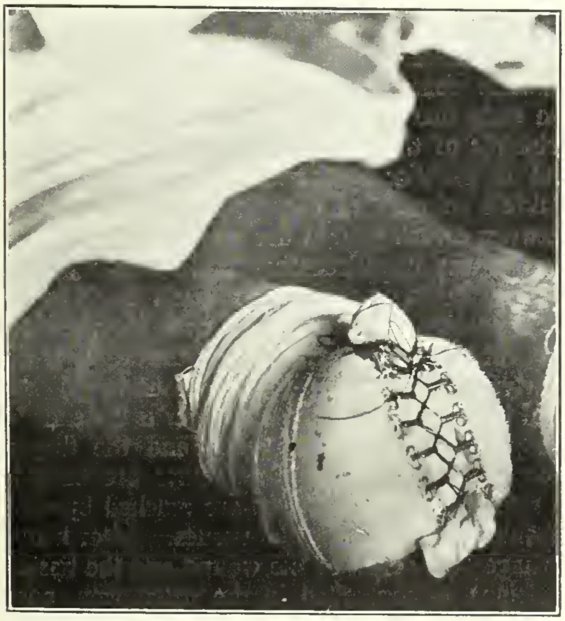

Fig. 8.—The "corset lacing" dressing for gaping wounds and uncovered stumps.

Before these hospitals were used the Ambulance Hospital remained filled with many chronic and temporarily uninteresting cases which on discharge were lost sight of and fell to the hands of others for later treatment. By this arrangement they are followed to their ultimate cure or limit of improvement.

THE SURGERY SEEN IN THE AMERICAN AMBULANCE HOSPITAL OF PARIS

The surgery in the hospital is primarily that of open wounds and secondarily that of closed wounds. Simple fractures and contused wounds are rare and are treated no differently than we treat them ordinarily.

The surgery of the open wounds may be divided into: first, simple infected wounds of the tissues; second, compound infected fractures. Under both of these conditions we often have nerve and occasionally blood vessel lesions in addition to lesions of muscle and tendon, and very often foreign bodies are present. These cases do not reach the hospital under thirty-six hours and it is very rare for them to reach it in this time. Ordinarily it takes no less than four days from the time of his being wounded for a soldier to filter through the different front hospitals to the Paris hospital. Even this is not usual; many, perhaps the majority of patients reach the hospital eight, ten, twelve, to thirty days or more after their wounds. Under these circumstances much of the preliminary treatment has been administered and the cases reach the hospital on the high tide of a profuse suppuration. Most of these wounds are due to "eclat de obus" or exploded shell. Few shrapnell balls are seen, and those patients injured by rifle balls are rarely seen. The rifle ball injuries are most humane. Frequently they heal without any attention even when involving the lung and causing blood effusion in the pleural cavity.

The treatment of the infected wounds of the tissues is essentially the same as we are in the habit of using in civil practice, with the addition of Dakin's solution to the list of antiseptics, and the meeting of secondary hemorrhage. This is done by local ligation of bleeding parts which often is extremely difficult in indurated inflamed tissues and by ligation of the vessels of supply at a point away from the infected area. This is more certain and has given good results in the Ambulance Hospital even in such vessels as the external carotid and the popliteal.

Where there is nerve paralysis in these cases, the rule is to maintain the part affected in proper position and wait for healing of the wound. Frequently as time goes on, signs of returning power in the paralyzed part appear and complete recovery takes place. The most likely explanation of these cases is that the nerve is merely pressed on by inflammatory and indurated tissue and that the pressure is released with resolution of the inflammation, or that the nerve has been actually severed and that fibers have penetrated or circumvented the scar tissue between the two ends. The most common nerve lesions seen are musculo-spiral and external popliteal. Also a considerable proportion of sciatic, ulnar, median, and even brachial plexus cases are seen.

Traumatic aneurysms are comparatively rarely seen in the hospital and the treatment does not differ from our treatment in civil practice. Some of these become smaller and improve with time and rest.

Before dismissing the question of treatment of wounds with what is mentioned above, I must briefly mention the handling of these cases by Dr. Carrel and his associates at their hospital. I had the pleasure of following their work at their hospital in Compiègne for some days and found it most interesting. The hospital is just about five miles behind the lines, and injured men reach there within one half to two hours from the time of their injuries. They are immediately Roentgen-rayed and then taken to the operating room. Here all contused or lacerated tissue is excised, whether it be bone or merely soft tissue. The wound is washed with Dakin's solution.

PREPARATION OF HYPOCHLORITE SOLUTION (DAKIN)

1. Clorinated lime (bleaching powder) . 200 gm.
Sodium carbonate, dry .... 100 gm.
Sodium bicarbonate .... 80 gm.

2. Put the chlorinated lime in a 12-liter flask with 5 liters of ordinary water, and let it stand over night.

3. Dissolve the sodium carbonate and bicarbonate in 5 liters of cold water.

4. Pour (3) into the flask containing (2), shake it vigorously for a minute, and let it stand to permit the calcium carbonate to settle.

5. After half an hour siphon off the clear liquid and filter it through paper to obtain a perfectly limpid product. This must be kept protected from the light.

The antiseptic solution is then ready for surgical use; it contains about 0.5 gm. per cent. of sodium hypochlorite with small amounts of neutral soda salts; it is practically isotonic with blood serum. It should meet the following tests:

Test.—Put about 20 c.c. of the solution in a glass and pour on its surface a few centigrams of phenolphthalein in *powder;* shake it with a circular movement, as in rinsing; the liquid should remain colorless. A more or less marked red discoloration indicates the presence of a notable quantity of free alkali, or incomplete carbonation, imputable to an error in technic.

Errors to Be Avoided.—Never heat the solution. If in an emergency it is necessary to triturate the chlorinated lime in a mortar, do so only with water, never with the solution of the soda salts.

Titration.—To 10 c.c. of the solution add 10 c.c. of distilled water, 2 gm. of potassium iodid and 2 c.c. of acetic acid. Pour into this mixture a decinormal (2.48 per cent.) solution of sodium thiosulphate (hyposulphite) until it is decolorized. The number of cubic centimeters of thiosulphate employed multiplied by 0.03725 equals the percentage of sodium hypochlorite in the solution.

This is made as near neutral as possible by using phenolsulphonephthalein as an indicator. At its bottom and in any crevices of the wound are placed rubber drainage tubes from 3 mm. to 12 mm. in diameter tied with silk so as to close their ends and having small perforations at their sides. Others of these tubes have in addition some turkish towel wrapped around the ends that are placed in the wounds. The principle of these tubes is to provide drainage and in addition to permit the application of Dakin's solution to every part of the wound between dressings. At the time of my visit Dr. Carrel was experimenting with rubber glove fingers, having perforations made by No. 12 bead needles. These he tied over the ends of the rubber tubes and placed the tube with overlying finger next to the wound. When fluid is run into the tube the finger is distended, the perforations are widened, and the finger literally sweats. Thus the tissues are bathed in solution and all crevices are reached by distending and separating the tissues. After hemorrhage (the result of the wound and the tissue excision) is controlled in the usual way, and the tubes are placed, the wound is packed with gauze saturated with Dakin's solution and dressed with a gauze-covered cotton pad held by a binder. The rubber tubes are left out from under the dressing and connected to a glass tube having small branchings, each rubber tube being slipped over a branch. Then the main glass tube is connected with a flask of Dakin's solution which hangs on the bed. With this arrangement dressings are necessary only once a day but every two hours a small amount of Dakin's solution is allowed to run from the flask into the rubber tube by releasing a stop cock. In this way the wound is "sterilized" by frequently applying Dakin's solution. Each day at dressing a smear is taken from the wound, and when the day arrives that the smear shows no organisms or only one to about three microscopic fields, the wound is sutured. This happens in from five to twelve days. Where bone is involved Beck's paste is used to fill "dead spaces." Dr. Carrel insists on the bacteriological following of these cases as being the essential point for success.

This method of handling wounds that it has already been proved cannot be sutured primarily, on account of infection introduced at the inception of the wound, is based on good reasoning. Dr Carrel and his associates have done the next best thing; they have undertaken the slow sterilization of wounds known to be infected and impossible of suture for this reason; further, they have taken advantage of the short time elapsing between the reception of the wound and entrance into the hospital. The results of this treatment are striking; most of the cases when sewed seem to heal by first intention. The problem in the cases having bone involvement is still unsettled. This treatment is by no means suited to all cases. Where bone is extensively shattered it is criminal to remove it, and when wounds are in certain positions where nerves are involved and there is great need in saving everything possible for future use and where wounds are not within but directly adjoining joints and other susceptible cavities it is obviously unwise to indiscriminately remove tissue. Further, our experience in the Ambulance Hospital was that wounds received some hours before attempting this treatment were inflamed and indurated. In a limited number of selected favorable cases we tried it but without success. The criticism has been made that Dakin's solution, which is really a modified Labarraque's solution, in use in America for many years especially to remove sloughing tissues, will cause hemorrhage by eroding vessels. It will; however, the Carrel school contends, that if all bleeding vessels are ligated at the time of operation there is no danger of this. This obviously ideal treatment must remain for those who receive patients within several hours of their being wounded.

In all cases having foreign bodies an effort is made to remove them, not because in every instance they cause trouble but because the soldiers almost invariably want them removed and the French military authorities desire it. This is not done when the infective process is at its height because at this time further exposure of tissue results in violent reactions that imperil life. So when the infectious process has subsided the foreign body is approached. Frequently healing takes place when they remain in the tissues and often as time goes on they approach the surface. These are additional reasons for procrastination; I have never seen an instance in which allowing metal foreign bodies to remain, caused any delay in the progress of a badly infected patient.

The Roentgen-Ray, Marion Localizer, and "Vibrator" and the Instruments Used to Locate the Foreign Bodies.—Of these, the vibrator when the foreign body will vibrate is by far the apparatus of choice. If unable to get vibration the localizer is of unquestionable value but with it failure is possible. Without one or the other of these instruments search for a foreign body is a decidedly tedious and uncertain procedure, the Roentgen ray alone being of no great help excepting to decide the presence of the foreign body. Often the combined use of the localizer and vibrator is necessary in the search for the foreign body. Withdrawing without finding the foreign body is no reflection on one's ability as occasionally the ultimate obtaining of it involves the destruction of vital tissue, where the foreign body has really been doing no harm. It is rare, however, to fail in the search and frequently one goes in to reach a foreign body apparently close to the surface and eventually removes it from the base of the brain, the region of the sacroiliac joint, beneath the rib, and so on.

Compound Fractures.—Of the classification of wounds I have given, this constitutes the largest number. Those of the skull involving the brain are practically all fatal. The rest of the fractures are largely of the upper and lower jaws and the extremities; those including the rest of the body are treated much the same as in civil practice and are of no particular interest here. The term "loss of substance" is used for those cases in which some of the bone is carried away.

Those cases showing "loss of substance" of the upper and lower jaw or both are from a cosmetic point of view intensely interesting. At first they are foul smelling and covered with mucus. This is controlled by sodium bicarbonate and permanganate solutions. As soon as infection permits, the remaining portions of the jaws are splinted by the dentist who fastens apparatuses to the remaining teeth; then the soft parts are held in position and kept from retracting by the use of adhesive with hooks for lacing. Later the dentist perfects apparatuses to take the place of the jaw and teeth and if necessary the surgeon transplants bone to the jaw and does other corrective plastic work, swinging skin and mucus membrane to replace the skin of the chin and the mucous membrane of the lips.

A very large number of cases of "loss of substance" of the upper humerus are seen. These are treated on a gutter or with a scarf holding the arm in abduction at right angles to the body and the elbow is bent with the forearms at a right angle to the arm by using extension. This principle is followed in all shoulder cases as abduction is the best position for the arm in case of ankylosis, elevation of the forearm prevents edema, and the apparatus permits the daily motion of the elbow joint. The only novelty in the treatment of these infected compound fractures in the way of drainage is provided by the apparatus of Piper described by him in the Annals of Surgery (Vol. lxiii, 2, 1916). It is in general use for badly infected cases of all descriptions. As soon as infection subsides in these cases the previously mentioned apparatuses are discarded and the arm is placed on the aeroplane splint still at a right angle to the body and with the hand higher than the elbow and the elbow higher than the shoulder. In this way the patient can move about and at the same time the humerus is jammed toward the shoulder to encourage ankylosis in the right-angle position. With the shoulder end of the humerus gone, there is no hope for a movable joint and further where there is much loss of substance the arm must shorten considerably to reach the shoulder for ankylosis. Naturally the use of a graft occurs to all of us in cases of this sort, but I shall directly show why grafts are avoided as much as possible. The object of obtaining ankylosis and of having them in the right angle position is to have the motion of the scapula assume that of the shoulder, and this it does. After ankylosis takes place the weight of the arm displaces the scapula, swinging its angle in, and the arm falls to the side: with the deltoid and large back muscles elevation of the arm is made possible. Cases where there is extensive shattering of the humerus resembling a cubist picture as suggested by Dr. Hutchinson, are treated much in the same way. It is remarkable how quickly these cases improve when suspended in a simple scarf.

The forearm cases, when necessary for dressing, are put in cradles or simply suspended, but as quickly as dressings permit they are treated in the same way as is done in civil practice.

Fractures of the femur are treated mostly in the Thomas suspension splint, which I have already described. When not possible to get extension at the knee joints by scarf, figure eight bandages, or the ordinary methods of extension, Steinmann pins are used. These seem to cause but little discomfort and with ordinary care no infection takes place around them. They, so far as the extension of the femur is concerned, are superior to all other methods. When they are used an effort is made to use or at least approach the double inclined plane. The closer one approaches the double inclined plane, the better opportunity he has for daily motion of the knee joint. As to the results in these cases: in following a large number I found shortenings of 8 cm. in one, in none of the rest was there more than 5 cm., in some there was but 1 or 2 cm. and in some few there was no shortening.

The treatment of the leg fractures in principle is the same as of the arms. When their wounds permit, they are put in a gutter plaster for ambulatory treatment.

In all of these compound fractures you are dealing with osteomyelitis and as such they very closely resemble osteomyelitis seen in civil practice. No bone is removed primarily; an effort is made to conserve every bit of bone, whether loose or not. After union has taken place and suppuration continues, gentle curettage and search for loose fragments is made if Roentgen-ray pictures warrant the procedure. This procedure is never done in any but the gentlest manner for two reasons; first, serious reactions sometimes result and, second, it is possible to refracture the bone. Some statistics I took of cases on the wards did not show any startling results from operative procedure in osteomyelitis. However, when patients go indefinitely without improvement it is the only alternative.

I cannot leave this subject without mentioning the remarkable instances of regeneration of bone occasionally seen. In some cases showing loss of substance of the tibia, the leg being splinted by the fibula, the regeneration process has been miraculous. This has taken place when only the slightest suggestion of periosteum has been visible in the Roentgen-ray photographs.

The Chronic Surgery.—This type of surgery, made possible by the auxiliary hospitals, includes that of bones, nerves (some cases comprising both), and soft parts.

In the shoulder if it is impossible to get ankylosis, the upper end of the bone is fastened into the glenoid cavity with wire after healing takes place, in an effort to get ankylosis and have the scapula assume the work of the shoulder joint. The aeroplane is used on the same principle outlined above in these cases. The other cases are mostly of nonunion and are either plated or wired. Often in these cases nerves are involved in the scar tissue at the ends of the fragments and there is great difficulty in freeing them, or the severed ends of nerves are caught in the scar tissue around the sides of the fragments, making it necessary to free them and do an anastomosis. In cases of non-union and loss of substance, bone grafts are avoided as much as possible, because in doing this type of bone work, one, in healed cases running no temperature, occasionally uncovers pockets of pus, which we assume provide the infection responsible for failures in some of the graft cases. In France 100 per cent. of successes in this work cannot be obtained. Recently on account of finding this concealed pus, some of these bone cases are being done in the presence of mildly discharging sinuses.

The nerve work makes most interesting cases. These cases are mostly resections of nerve or scar tissue formations, or suturings of severed ends. In some cases release of adhesions or removal of spicules of bone that are pressing, are all that is necessary. In all of the different types of cases evidences of good results are now appearing.

The plastic corrective work on soft parts involves tendon transplants, fascia transplants, orthopedic correction and that sort of thing which we are familiar with in civil practice.

In the preceding pages I have tried to set forth those things that impressed me in three months' work in the American Ambulance Hospital of Paris and on the sanitary train with the Pennsylvania Hospital unit under the very able direction of Dr. J. P. Hutchinson.

SELECTIONS

A MESSAGE FROM THE MODERATOR

"Members of one body!" This is not only a fundamental of the Gospel but of all our social thinking. Human beings are not hermit crabs, though some of them act like it. They live with each other and for each other and on each other. Isolation, where it exists, is a disease, a member amputated from the common body and separated from the common life. It is not the way nature intended and God didn't mean it to be so when He started us on our planet.

The Church is like any other living body. The parts must work and function together. The alternative is disease. In many of our churches one-half the membership carries the other half, which means that they are half diseased and half well. If a church existed for its own sake, it would be better to cut the sick members off, that the rest, though crippled, might enjoy good health. But a church exists for the sake of the world. It cannot be true to its mission and cut a member off because he is not functioning properly. Its business is to save, not to excise; to treat and cure, not to amputate.

There are certain lines of church life along which every member should function, that is, do his share to keep up the heart-beat of the whole body.

First, in maintaining his own spiritual life. The spirituality of a church is the sum total of the spirituality of its members, and nothing more. A weak, vacillating, unspiritual member is a sore spot, a raw nerve, in the body, and every other member will suffer and ache because of him. The first duty of a member of the common whole is to live a Christlike life. Whether he does or not is a great deal more than his own business, it is the business of everybody that is hurt by his failure, and that means the whole army of Christian believers. More than that, it means the Christ who is crucified afresh.

Second, in promoting the welfare of the whole body. Every Christian is essentially a promoter. This is part of Christ's definition of him. He put "go" into the last thing he told us to do. No church member is functioning aright unless he has his shoulder to the wheel and is pushing hard. He has no holding-back straps, he is equipped only with pulling chains. We need an awakening on the importance of every member enlisting in the work of his church.

Third, in furnishing the sinews of the Christian campaign. The Church, like an army, must have a treasury. The army does not fight with its treasury but it cannot fight without it. The Church does not preach with its contributions, but it cannot preach without them. Giving is a part of worship, and every member must participate in it if he is to secure a blessing for himself and the whole body.

We should not forget the solemn fact that it is the body of Christ of which we are members, and that if we fail we cripple Him. We may be very insignificant members of His body, but one brain cell may paralyze an arm.—John A. Marquis in *The Assembly Herald*, January, 1917.

"TRESPASSERS WILL BE PROSECUTED"

It is common knowledge that certain medical cults —as, for instance, the osteopaths and the chiropractors—when asking for special legislation, announced that their treatment would be limited to manipulation: that the use of drugs and surgical procedures was no part of their methods. The legislature of one state—Ohio—took these "limited practitioners" at their word; hence the Platt-Ellis law, passed in 1915, provides that "such certificates" [that is, certificates issued to these "limited practitioners"] "shall authorize the holder thereof to practice such limited branch or branches of medicine or surgery as may be specified therein, but shall not permit him to practice any other branch or branches of medicine or surgery, nor shall it permit him to treat infectious, contagious or venereal diseases, nor to prescribe or administer drugs or to perform major surgery." But these "limited practitioners," even in Ohio, in spite of these legal restrictions, have gradually branched off on other lines and have ceased to comply with the law. The Ohio State Medical Board now proposes to deal with the question in a practical and reasonable manner. It has decided to inaugurate a state-wide campaign to protect the public against the illegal practices of these "healers," and it will employ a corps of investigators to conduct the work. The law provides means for the revocation of licenses, and the board evidently intends to enforce these provisions, and to facilitate the matter proposes to hold monthly, instead of quarterly, meetings. There will be no element of persecution in their action, which, it is worthy of note, is being endorsed by the better element among these "limited practitioners." The chiropractors will be permitted to practice chiropractic, whatever that may be, and the "magnetic healers" to "magnetize," but only within the limits defined by the law and the regulations of the board made under that law; they will not be permitted to use these limited licenses as a back entrance to the unrestricted practice of medicine.—*Jour. A. M. A.*, Nov. 18, 1916.

SING SING'S REBIRTH

Conditions existing today at Sing Sing, both as a result of the innovations of the former warden, Mr. Osborne, and the introduction of a psychiatric clinic, as set forth by its director, Dr. Bernard Glueck, at a recent meeting of the New York Psychiatric Society, show such marked advances over the past that we wish to call attention to the results obtained.

In the first place, the formation of the Mutual Welfare League by Mr Osborne was an experiment which has proved successful in group psychology, The league, as is pretty well known now through the notoriety it has received, is a body of men composed of prisoners through whom the prisoners become self governing. Infractions of discipline and the law are dealt with in a court of the league, and the prisoners themselves designate the disposition of the cases. This is the application to prison life of a principle well understood by men of affairs, namely, that responsibility and authority must be commensurate. The league is a success because the men, by succeeding in governing themselves through it, derive therefrom a much larger measure of individual freedom. It is a solution along the lines in which every social problem must be solved, a solution that brings benefits both to the individual and to the group.

The special work of the Psychiatric Clinic is more particularly interesting from the medical point of view. Already in the study of successive admissions it has become evident that a very large percentage of those sent to Sing Sing—considerably over 50 per cent.—are suffering from definable diseases of the central nervous system, and are therefore fundamentally not only cases for the doctor, but for the psychiatrist. To such a state has the ideal of the law brought us! The ideal that considers the crime and not the criminal.

It is of exceeding interest to learn that the prisoners themselves are beginning to appreciate, and to value very highly the existence of the Psychiatric Clinic. The clinic is there to help them, and they know it, and therefore they are constantly applying for help in person, and not only that but doing what very few judges on the criminal bench would think of doing—applying to the Psychiatric Clinic for information about those who come before their own Mutual Welfare court so that they can deal with them more intelligently.

And finally, a matter of the utmost importance in prison administration, as well as in all institutional management, it is being found more and more as the days go by that the serious difficulties which result in disorder and highly aberrant forms of conduct which in the average prison demand disciplinary measures of more or less severity, are almost all artificial products. In other words, a more intelligent understanding of the person and his immediate prison environment and the relation of the two will enable the management, in at least nine cases out of ten, to readjust the situation so as either to prevent these outbreaks or to cure them after they have occurred.

The advent of the psychiatrist in the prison will undoubtedly prove a revolutionary measure in prison management. It is the beginning of sanity in dealing with the criminal.—Editorial, *N. Y. Med. Jour.*, Jan. 20, 1917.

ACUTE SYPHILITIC MENINGITIS

Bronstein considers that the term acute syphilitic meningitis should be more particularly applied to acute meningeal phenomena of the secondary period, sometimes preceding, but more frequently accompanying the cutaneous manifestations of this period. The pathology is essentially a meningovascularitis with hypersecretion of the cerebrospinal fluid. Prodromal symptoms, such as headache and insomnia, may or may not occur. Acute syphilitic meningitis at its height, as Dr. Boris Bronstein, Odessa, Russia, says in the December *International Clinics*, presents the clinical picture of the tubercular form, differing from the latter by the indistinctiveness of the symptoms, such as contractures and stiffness of the neck, and by the absence of any marked disturbance of the pulse and respiration. In the luetic form fever is apt to be absent and there may be remissions and relapses. Lumbar puncture reveals a considerable hypertension of the cerebrospinal fluid, albumin in quantity, and a marked lymphocytosis with plasmozellen. The cerebrospinal fluid may yield a positive Wassermann even when the blood serum is negative. Other manifestations of syphilis are to be looked for. The immediate prognosis is rarely fatal but the ultimate prognosis should be reserved. Prophylactic treatment is recommended whenever the cerebrospinal fluid shows a lymphocytosis, even when all meningeal symptoms are wanting. The treatment consists in frequently repeated removal of the cerebrospinal fluid in considerable amount, combined with intravenous injection of cyanid of mercury and intraspinal injections of colloidal mercury. Neosalvarsan or salvarsan have a much more rapid action, but must be prudently handled in neurologic lesions of syphilis.

The great European war still rages, and lay journals as well as medical journals recount the achievements of medical men in the great war hospitals. There is even a demand for more medical men, and especially medical men capable of doing surgery. We wonder if the average person has noted that among all the reports concerning medical and surgical work in connection with the European war, not a one concerns work done by Christian Scientists, osteopaths, chiropractors, neuropaths, vitapaths and the hordes of other "paths" that may be listed in the army of pretenders. The reason is obvious. In times of great disaster, such as accompanies war and epidemics of communicable diseases, there is a demand for real doctors, and not for those of the make-believe kind. What a pity it is that some of our legislators do not appreciate the significance of this fact. The loudest supporters of the various pseudomedical cults are the first ones to turn to the regular medical profession in time of real trouble.—*The Journal of the Indiana State Medical Association,* Dec. 15, 1916.

THE PENNSYLVANIA MEDICAL JOURNAL

Published Monthly Official Organ of the Medical Society of the State of Pennsylvania

CYRUS LEE STEVENS, A.M., M.D., Editor

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All communications should be addressed to the PENNSYLVANIA MEDICAL JOURNAL, Athens, Pa.

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ATHENS, PA., MARCH, 1917

FORM OF BEQUEST

Individuals contemplating the making of bequests to the Medical Society of the State of Pennsylvania to be used in promoting preventive medicine, medical research, medical benevolence, medical defense, or for the general purposes of the society, are advised to have will prepared by a lawyer. There must be two credible and disinterested witnesses to the signature of the testator. If the will is executed within one calendar month before the death of the testator any charitable bequest will be invalid.

The following suggested form may be of service when a lawyer is not obtainable:

I give, devise and bequeath unto the Medical Society of the State of Pennsylvania, a corporation,(Here state the sum of money, or particular securities, or description of property to be given)to be used by the said corporation for such appropriate objects of its organization as it may determine will best promote its purposes, or to be used for..........................; or to be held as a permanent endowment and the income therefrom only used for ....

OUR ENDOWMENT FUND

The greatest need of the Medical Society of the State of Pennsylvania at the present time is an assured income in excess of the yearly revenue derived from the per capita assessment. The officers and committees realize that they do not accomplish all that is desirable. Much that should be done they cannot attempt for lack of time and money. Committees endeavor to perform duties too arduous for busy practitioners. These duties should be given to an executive and he should keep them continuously active. He should be paid a salary from the income of the society. Since the society has no income except from dues the necessity for an endowment fund is evident.

There should be some one whose duty it would be carefully to scan all bills introduced into the legislature affecting the medical profession. The detail work in connection with the proposed amendments to the Workmen's Compensation Act should be done by a trained executive. He could also explain matters like the so-called Health Insurance Act which is being so adroitly fostered and nurtured. (The medical provisions of the proposed act constitute the gravest menace to the medical profession that has ever been proposed in this country.) Detailed surveys of all matters pertaining to the vital interests of the profession could be made.

These and many more reasons present themselves for the establishment of an endowment fund. The interest derived from a large fund would sustain our organization and enable the officers to employ sufficient help properly to keep the activities of the Medical Society of the State of Pennsylvania from becoming dormant. With good foresight the House of Delegates at the Scranton Session decided to establish an endowment fund, and acting in accordance with these instructions, the trustees voted the sum of $1,200 per year to be invested in a building and loan association. At maturity these shares should be worth at least $20,000. This is a splendid beginning and should be an incentive to all our members to contribute to the fund. The endowment should be added to yearly by gifts and bequests from all who have the best interests of the profession at heart. The endowment fund has come to remain, and its object is to promote the good works of the medical profession. Kindly send your subscriptions to Dr. George W. Wagoner, treasurer, 435 Franklin Street, Johnstown. Please mark plainly: For the Endowment Fund. Acknowledgment will be made through The Journal.

C. A. E. C.

THE PITTSBURGH SESSION

That the Allegheny County Medical Society is already planning for the best arrangements for the next session of the state society is evidenced by the personnel of the local committees. The Committee on Arrangements consists of Dr. William B. Ewing, Westinghouse Building, chairman; Dr. Herbert G. Wertheimer, Westinghouse Building, secretary, and Dr. William Cullen Bryant, Jenkins Arcade Building, treasurer. The chairmen of the subcommittees are as follows: Automobile, Dr. John A. Hawkins, Jenkins Arcade Building; Entertainment, Dr. Thomas G. Simonton, 5412 Ellsworth Avenue; Ladies' Entertainment, Dr. Margaret A. Gould, 606 Sherman Avenue; Hotels, Dr. Carey J. Vaux, 526 Larimer Avenue; Scientific Exhibit, Dr. Ernest W. Willetts, Diamond Bank Building; Publicity, Dr. William H. Cameron, 11 Dunmoyle Place; Smoker, Dr. Walter F. Donaldson, Diamond Bank Building; Roentgen-Ray Exhibit, Dr. George C. Johnston, Jenkins Arcade Building.

SOME LEGISLATION PENDING AT HARRISBURG

There follow some data regarding certain bills, of more or less interest to physicians, introduced into the present legislature. A list of the members of the senate and house of representatives will be found in The Journal for January, and a list of the most important committees of both branches of the legislature in The Journal for February.

Senate Bill No. 74. The Optometry Bill. This has passed the senate and has passed first reading in the house. "The Board of Optometrical Education, Examination and Licensure" is to consist of seven "optometrists citizens" who are independent of all state supervision except the provision that the governor "may remove any member of said board for continued neglect of his duties in connection therewith or for any unprofessional or dishonorable conduct."

Senate Bill No. 46. Prohibiting the manufacture of adulterated or misbranded liquors.

Senate Bill No. 170. Appropriating funds for the State Village for Feeble-Minded Women, Laurelton, Union County, $250,000 for construction and equipment, and $86,000 for maintenance. This measure was approved by House of Delegates at Scranton Session, and has the approval of the State board of Public Charities. This bill will require the approval of the Appropriations Committee of both senate and house.

Senate Bill No. 199. Prohibiting state aided hospitals from restricting choice of physicians or surgeons by pay patients.

A senate bill introduced February 7 provides for the daily disinfection of all pencils and penholders used by the schoolchildren.

House Bill No. 285. Regulating the employment of persons in compressed air work.

House Bill No. 308. Requiring counties to pay for the treatment of rabies.

House Bill No. 256. Repealing such sections of the Workmen's Compensation Law as require employers to report accidents to the Department of Labor and Industry.

House Bill No. 393. Establishing district farms to care for certain prisoners.

House Bill No. 400. Prohibiting the use of public cigar cutters.

House Bill No. 407. Providing for medical certificates of absence of venereal disease as a prerequisite for marriage license.

House Bill No. 413. Repealing the law for registration of nurses. This bill was introduced by Mr. Gans, Philadelphia, and was referred to the Committee on Public Health and Sanitation.

House Bill No. 479. Regulating traffic in drugs. This bill would make it necessary for physicians to report drug patients whom they undertake to treat to the local board of health or the state department of health, giving name and address, diagnosis and first treatment. When the patient is dismissed report to proper official. The purpose of the bill is to reach those physicians who treat drug addicts at their office as a cloak for dispensing narcotic drugs. Probably the only valid objection to this bill is that the penalty, $2,000 or imprisonment not exceeding five years, is out of proportion to the offense.

for the first offense at least. This bill was referred to the Committee on Public Health and Sanitation.

A house bill known as the Antivaccination bill was referred to the Committee on Education. The following proviso would greatly nullify the value of the present law:

"Or if it be shown by the sworn certificate of a regular practicing physician that the health or physical condition of the child is such that vaccination would endanger the life or health of the child, but that the child is free from any contagious ailment or affection, such child shall be permitted to attend school until such time as it may be vaccinated without danger to its life or health when the provisions of this section shall be enforced."

Honest and intelligent physicians do not wish to be parties to the evasion of a proper sanitary regulation, but there might be found in some places a dishonest or "easy-going" physician who for a fee or to please a client would falsely certify and thus lessen the protective value of general vaccination.

HONOR ROLL FOR MARCH

The following component county societies have forwarded the 1917 per capita assessment for at least as many members as they had in 1916. The figures indicate the percentage of members paid:

Greene County, 105 per cent.
Huntingdon County, 103 per cent.
Sullivan County, 100 per cent.
Wyoming County, 100 per cent.

On March 10 the per capita assessment for 3,856 members had been received by the state secretary as compared with 3,492 members at the corresponding date in 1916. No assessment for 1917 had been received on March 10 from the following societies: Chester, Indiana, Jefferson, Lackawanna, Lancaster, McKean, Schuylkill, and Warren. It is more than probable that their secretaries are waiting to remit at one time for their total membership and that before this article is read they will have remitted. They are all live societies and none of them will be found wanting on March 28. Have they not, however, taken in new members since last October, who should have been reported?

Since the above was written it has been learned incidentally that the secretary of one of the above mentioned societies has been convalescing for a time at Atlantic City.

FRANK S. BETZ COMPANY HOSPITAL EQUIPMENT

The Frank S. Betz Company, Hammond, Ind., has just put out a new catalogue of hospital equipment with illustrations and prices. THE JOURNAL has personal knowledge that everything in this plant is now in perfect order, goods are shipped promptly and every complaint is given attention the day it is received, customers being given the benefit of any doubt. Twenty-two years' experience in the manufacture of hospital furniture and surgical instruments should be evidence that this house knows how to give satisfaction. The following is taken from the Foreword of the catalogue: "We guarantee each and every article in this catalogue as described and illustrated and will repair or replace, free of charge, any of our products found defective, either in material or workmanship." Those needing hospital or office furniture or equipment should send for this 1917 Hospital Equipment Catalogue.

CHANGES IN MEMBERSHIP OF COUNTY SOCIETIES

The following changes have been reported since the February JOURNAL was printed, up to March 5:

ALLEGHENY COUNTY: *New Members.*—H. G. Clark, James J. Dickinson, William H. Kirk, Isaac N. Lear, Pittsburgh; Joseph G. Steedle, McKees Rocks; Joseph H. Steim (by transfer from Armstrong County Society), Raymond A. Wolff, New Kensington (Westmoreland Co.); Joseph C. Wiley, McKeesport. *Death.*—George M. Shillito (Jefferson Med. Coll., '68) in Pittsburgh, February 14, aged 76. *Removals.*—Lucian C. Fausold from Mt. Pleasant (Westmoreland Co.) to Glenshaw; James M. Knowlton from Premont, Tex., to 100 Haynes Ave., San Antonio, Tex.; Zaccheus R. Scott from Dravosburg to Cor. Louisa and Semple Sts., Pittsburgh; William A. Hodkinson from Los Angeles to Winward Apts., Venice, Calif.

ARMSTRONG COUNTY: *Removal.*—George E. Cramer from Templeton to 1305 Middle St., Sharpsburg (Allegheny Co.). *Transfer.*—Joseph M. Steim to Allegheny County Society.

BEAVER COUNTY: *New Member.*—John L. Miller, Aliquippa.

BLAIR COUNTY: *New Members.*—Linfred L. Cooper, Tyrone (by transfer from Philadelphia County Society); Roy Deck, Hollidaysburg; Hugh Morrow, Williamsburg; Chalmers Montgomery, John R. T. Snyder, James S. Taylor, Altoona. *Death.*—Frank A. Ford (Univ. of Pennsylvania, '97) in Altoona, February 10, aged 40; Thomas Tobin (Univ. of Buffalo, '82) in Tyrone, February 13, from cerebral hemorrhage, aged 61. *Resignation.*—David T. McKinney.

BUTLER COUNTY: Willard L. DeWolf has been made an honorary member of Butler County Society and is no longer an active member.

CAMBRIA COUNTY: *Death.*—Frank B. Statler (Jefferson Med. Coll., '89) in Johnstown recently.

Carbon County: *Removal.*—Edward F. Eshleman from Parryville to Palmerton.

Chester County: *New Member.*—I. Pemberton P. Hollingsworth, West Chester (by transfer from Delaware County Society). *Removals.*—Joseph Bringhurst from West Chester to Harrington, Del.; Joseph D. Leebron from West Grove to 5814 Chestnut St., Philadelphia.

Clearfield County: *Removal.*—John J. McDonald from Ansonville to Nesquehoning (Carbon Co.).

Dauphin County: *Removal.*—W. Stewart Russell from Harrisburg to 242 Main St., Steelton.

Delaware County: *New Members.*—John Orville Crist, Chester; William Hammond, Glenolden. *Transfer.*—I. Pemberton P. Hollingsworth to Chester County Society.

Fayette County: *New Members.*—Harry F. Kramer, Republic; William L. Quinn, Fayette City. *Resignation.*—Malcolm H. Koehler. *Removal.*—James H. Nixon from Fairchance to Uledi.

Franklin County: *Removal.*—Rebecca P. Laughlin from Philadelphia to Waynesboro.

Huntingdon County: *Removal.*—Harold G. Horton from Saltillo to Three Springs.

Lackawanna County: *Death.*—James S. Porteus (Univ. of Pennsylvania, '73) of Scranton, in Taylor, January 26, aged 76.

Lawrence County: *New Member.*—Thaddeus C. Brown, New Castle.

Lehigh County: *New Member.*—Louis C. LaBarre, Allentown. *Removal.*—James H. Paul from Newville (Cumberland Co.) to Laceyville (Wyoming Co.).

Luzerne County: *New Members.*—George A. Clark, Thomas V. McLaughlin, Wilkes-Barre; Daniel F. Daley, Felix J. Krych, Kingston; John L. Lavin, Swoyersville; Charles E. Nicholson, Pittston. *Death.*—William H. Faulds (Uni. of Pennsylvania, '76) in Kingston, February 7, aged 71. *Removals.*—George F. Burkhardt from Drums to 109 South Cedar St., Hazleton; Patrick A. McLaughlin from Kingston to 1906 Sansom St., Philadelphia.

Lycoming County: *New Member.*—L. W. Wright, Williamsport.

Monroe County: *New Member.*—Harry S. Van Etten, Stroudsburg.

Montgomery County: *Removals.*—Alexander H. O'Neal from Wayne (Delaware Co.) to St. Davids (Delaware Co.); Monroe H. Tunnell from Rosemont to 23 Prospect Ave., Bryn Mawr.

Northampton County: *Death.*—Gustav T. Fox (New York Univ. Med. Coll., '65) in Bethlehem, February 28, from neuralgia, aged 74.

Philadelphia County: *Deaths.*—Wilbur C. Hammond (Univ. of Pennsylvania, '94) in Philadelphia, February 4; Rosh Leaman (Jefferson Med. Coll., '82) in Philadelphia, January 25, aged 62; Bertha Lewis (Women's Med. Coll. of Pennsylvania, '93) was instantly killed in a collision of automobiles at Bryn Mawr, February 11, aged 64; George Hudson Makuen (Jefferson Med. Coll., '89) of Philadelphia, in Goshen, N. Y., February 21, aged 61. *Transfer.*—Linfred L. Cooper to Blair County Society. *Removals.*—George T. Faris from Philadelphia to Glenside (Montgomery Co.); Horace J. Williams from Philadelphia to c/o Col. G. G. Green, Woodbury, N. J.

Potter County: *New Member.*—Hal A. Laye, Galeton.

Schuylkill County: *Removal.*—John D. Riley from Philadelphia to Mahanoy City.

Venango County: *New Member.*—James R. Sharp, Oil City.

Washington County: *Death.*—John C. Nesbit (Columbus, Ohio, Med. Coll., '81) in South Burgettstown, February 3, from cerebral hemorrhage, aged 67.

Wayne County: *New Members.*—Walter R. Krouss, Farview; Edwin S. Miller, Pleasant Mount.

Westmoreland County: *New Members.*—William J. Haymaker, Export; Joseph H. Watson, Jeannette. *Removal.*—Joseph M. Reed from Cambridge, Mass., to Derry.

PAYMENT OF PER CAPITA ASSESSMENT

The *per capita* assessment for the year 1916 has been received from component county societies since January 6, as acknowledged on page 299 of the January Journal, as follows:

Mar. 1,	Lawrence	60	6729	$2.75

The *per capita* assessment for the year 1917 has been received from component county societies since February 10, as acknowledged on pages 371-372 of the February Journal, as follows:

Feb. 12,	Bedford	6– 8	1853–1855	$ 8.25
	Westmoreland	35–58	1856–1879	66.00
	Clinton	9	1880	2.75
	Bedford	9–10	1881–1882	5.50
Feb. 13,	Bedford	11	1883	2.75
Feb. 16,	Lycoming	47–57	1884–1894	30.25
	Huntingdon	24–30	1895–1901	19.25
	Monroe	1–11	1902–1912	30.25
	Blair	26–48	1913–1935	63.25
	Beaver	24–50	1936–1962	74.25
	Cumberland	22–23	1963–1964	5.50
Feb. 17,	Cambria	62–76	1965–1979	41.25
	York	71–78	1980–1987	22.00
	Bedford	12–13	1988–1989	5.50
Feb. 20,	Mercer	36–45	1990–1999	27.50
	Wayne	1–11	2000–2010	30.25
	Carbon	17–21	2011–2015	13.75
	Bucks	35–47	2016–2028	35.75
	Venango	1–16	2029–2044	44.00
	Berks	45–58	2045–2058	38.50
	Snyder	1– 9	2059–2067	24.75
	Mifflin	23–24	2068–2069	5.50
	Wyoming	13	2070	2.75
	Center	10–13	2071–2074	11.00
Feb. 21,	Montgomery	81–98	2075–2092	49.50
	Huntingdon	31–34	2093–2096	11.00
Feb. 23,	Bedford	14–16	2097–2099	8.25
	Clinton	10	2100	2.75
	Delaware	35–46	2101–2112	33.00
	Northampton	47–74	2113–2140	77.00
	Dauphin	67–71, 73–105	2141–2178	107.25
	Washington	42–66	2179–2203	68.75
Feb. 24,	Montgomery	99–108	2204–2213	27.50
	Westmoreland	59–73	2214–2228	41.25
Feb. 26,	Cambria	77–82	2229–2234	16.50
	Wyoming	14	2235	2.75
	Allegheny	502, 503, 505–618, 631, 632	2236–2353	324.50
Feb. 27,	Mercer	46–47	2354–2355	5.50
	Lehigh	40–65	2356–2381	71.50
	Berks	59–62	2382–2385	11.00
	Montour	16–17	2386–2387	5.50
	Cumberland	24	2388	2.75
	Fayette	70–84	2389–2403	41.25
	Clinton	11	2404	2.75
	Lycoming	58–61	2405–2408	11.00

Mar. 1,	Columbia	26–33	2409–2416	22.00
	Lawrence	31–40	2417–2426	27.50
	York	79–91	2427–2439	35.75
	Cumberland	25	2440	2.75
	Armstrong	38–41	2441–2444	11.00
Mar. 2,	Greene	20	2445	2.75
Mar. 3,	Potter	15	2446	2.75
Mar. 5,	Northumberl'd	38–40	2447–2449	8.25
	Mifflin	25	2450	2.75
	Clinton	12	2451	2.75
	Bradford	22–31	2452–2461	27.50
	Fayette	85–93	2462–2470	24.75
	Armstrong	42–45	2471–2474	11.00
	Blair	49–67	2475–2493	52.25
Mar. 6,	Berks	63–75	2494–2506	35.75
	Monroe	12–13	2507–2508	5.50
Mar. 7,	Franklin	18–26	2509–2517	24.75
	Cumberland	26	2518	2.75
	Clarion	28–31	2519–2522	11.00
Mar. 8,	Columbia	34–35	2523–2524	5.50
	Snyder	10–14	2525–2529	13.75
Mar. 9,	Carbon	22–25	2530–2533	11.00
	Lebanon	1–13	2534–2546	35.75
	Philadelphia	1–1225	2547–3771	3,368.75
Mar. 10,	Armstrong	46–52	3772–3778	19.25
	Clinton	13	3779	2.75
	Delaware	47–54	3780–3787	22.00
	Westmoreland	74–92	3788–3806	52.25
	Dauphin	107–121	3807–3821	38.50
	Erie	9–43	3822–3856	96.25

STATE NEWS ITEMS

BORN

To DR. AND MRS. CHESTER G. CRIST, Gettysburg, a son on February 20.

To DR. AND MRS. FRANCIS WHARTON SINKLER, Philadelphia, a daughter February 14.

MARRIED

DR. C. A. WALTER, Glenside, and Miss Lillian W. Baxter, West Philadelphia, March 3.

DR. THOMAS C. STELLWAGEN, JR., Media, and Miss Elizabeth Charlotte Coane, Philadelphia, February 14.

DR. EDWARD E. MONTGOMERY, Philadelphia, and Miss Alice Jayne, Tarrytown, N. Y., at Yonkers, N. Y., February 6.

DIED

DR. JAMES LOGAN BROWN, in Pleasant Unity, January 13, aged 72.

DR. ALPHONSE LOUIS EAKIN (Univ. of Pennsylvania, '63) in Philadelphia, January 2, aged 77.

DR. JOSEPH G. WEST (Univ. of Pennsylvania, '60) in Kemblesville, February 10, aged 82.

DR. SAMUEL MASON MCCOLLIN (Jefferson Med. Coll., '78) in Philadelphia, February 24, aged 73.

DR. OSCAR JOSEPH KARL PRINZLER (license, Allegheny County, Pa., '81) in Pittsburgh, January 16, aged 81.

DR. ANNIS HYMAN CRAWFORD (Women's Med. Coll. of Pennsylvania, '83) in Williamsport, January 29, aged 60.

DR. SAMUEL HOUSTON RIDENOUR (Univ. of Pittsburgh, '90) of Pittsburgh, in Cumberland, Md., January 1, aged 58.

DR. JOHN JAY CRAWFORD (Jefferson Med. Coll., '82) of Coraopolis, was almost instantly killed by the overturning of his automobile at McClarrens Mills, January 11, aged 56.

DR. DANIEL DWYER (Univ. of Michigan, Ann Arbor, '91) in Dunmore January 9, from cerebral hemorrhage, aged 55.

DR. ASA STONE COUCH (Homeopathic Med. Coll. of Philadelphia, '55) of Scranton, in New York, February 2, aged 83.

DR. JOHN C. RUTTER (Hahnemann Med. Coll., Philadelphia, '55) in Bloomsburg, January 30, from influenza, aged 90.

DR. CONSTANTINE HENRY MARTIN (Bellevue Hosp. Med. Coll., '66) in Allentown, February 5, from cerebral hemorrhage, aged 71.

DR. OTTO APPLEY (Univ. of Buffalo, '80) of Damascus, in a sanitarium at Port Jervis, N. Y., recently, after an operation for disease of the intestines, aged 65.

ITEMS

DR. EDWARD RYAN, Scranton, has returned after two years spent in medical relief work in Serbia.

DR. JOHN M. GELWIX, Chambersburg, has been appointed surgeon to the Cumberland Valley Railroad.

DR. JOHN J. SULLIVAN, Scranton, has recovered from injuries received in an automobile accident on February 18.

MRS. J. WILLIAM WHITE, Philadelphia, has presented a motor ambulance to the American Ambulance Corps on the western war front.

INFANTILE PARALYSIS claimed its first 1917 victim in Pennsylvania, when Mary Graybowski, 6 years old, West Hazleton, died March 2.

DR L. WEBSTER FOX has been reelected president of the Pennsylvania Home Teaching Society and Free Circulating Library for the Blind.

DR. J. P. KERR, PITTSBURGH, has been mentioned for mayor of that city. He is at present president of Pittsburgh City Council of Nine.

A TYPHOID FEVER EPIDEMIC has broken out at Greenwood, a suburb of Altoona. Ten cases in three families were reported on February 23.

DR. LUBA ROBIN GOLDSMITH, Pittsburgh, has recently been elected secretary of the Milk Commission of the Allegheny County Medical Society.

DR. D. N. HUSIK has been appointed laryngologist and otologist to the Philadelphia General Hospital in place of Dr. Charles P. Grayson, resigned.

THE PHYSICIANS' MOTOR CLUB OF PHILADELPHIA, at its recent annual meeting, elected Dr. S. Leon Gans president, and Dr. Howard A. Sutton secretary.

DR. FRANK C. HAMMOND has been elected president of the Samaritan Hospital Medical Society, Philadelphia, and Dr. Daniel J. Donnelly, secretary and treasurer.

THE ABBINGTON MEMORIAL HOSPITAL has received a check of $5,000 from Mr. and Mrs. Caleb F. Fox, the money to be used to endow a bed in memory of their son, S. Crozer Fox.

PELLAGRA. Mrs. Anna Janasky, aged 23, died in Pittsburgh February 14, from what city officials declare was pellagra, the first case to be reported in Pittsburgh for many years.

THE PHILADELPHIA PEDIATRIC SOCIETY elected Dr. John F. Sinclair president; Dr. William Duffield Robinson, vice president; Dr. A. G. Mitchell, secretary, and Dr. Charles V. Dorwarth, treasurer.

The Fourth Conference of Physicians under the auspices of the State Department of Labor and Industry, was held in Harrisburg, February 16. The proceedings will be published in The Journal.

Dr. Russell Richardson, clinical pathologist to the Pennsylvania Hospital, Philadelphia, delivered an address on "Treatment of Lobar Pneumonia by Serum Therapy," before the Bucks County Medical Society February 14.

The Philadelphia Obstetrical Society has elected the following officers: president, Dr. Frank C. Hammond; vice president, Dr. F. Hurst Maier; secretary, Dr. Edward A. Schumann; treasurer, Dr. William E. Parke.

Prevalent Diseases in the East Indies was the subject of the Seventeenth Rush Society Lecture at the College of Physicians, Philadelphia, given March 1, by Dr. William G. MacCallum, professor of pathology, College of Physicians and Surgeons, N. Y.

The Philadelphia Alumni Society, University Medical Department, on February 17, presented a grandfather clock to Dr. B. Franklin Stahl, who had served as secretary for twenty-five years. Dr. Stahl was elected president of the society and Dr. Stephen E. Tracy, secretary.

A Branch of the Red Cross First Aid Department has been organized among the women of the University of Pittsburgh. The instructor and organizer is Dr. Luba Robin Goldsmith, the women's medical adviser at the university. The club is a thriving organization of fifty enthusiastic members and has rapidly become one of the most popular of the school activities.

To Equip a Base Hospital.—The Pennsylvania Division for National Preparedness on February 23 turned over to the American Red Cross $25,000 for the equipment of a base hospital to be known as Pennsylvania Base Hospital No. 10, Pennsylvania Women's Division for National Preparedness. The money, which was pledged last summer, was given as follows: $10,000 by Mr. E. T. Stotesbury, $10,000 by Cyrus H. K. Curtis and $5,000 by Mrs. George W. Childs Drexel.

Blockley Pavilion Dedicated.—The new glass enclosed pavilion for tuberculous patients at the Philadelphia General Hospital was dedicated, February 15. Dr. Wilmer Krusen, director of health and charities, was in charge of the ceremonies. The dedicatory address was delivered by Judge Patterson. Other speakers include the Rev. Francis X. Wastl, Catholic chaplain of the hospital; Dr. Albert P. Francine, Mrs. Thomas Robins, secretary of the Women's Advisory Board, and E. J. Cattell, city statistician.

The Jefferson Medical College Alumni Association held a smoker in the Arcadia Café, February 21, Dr. J. Coles Brick, president, acting as toastmaster. Prof. Chevalier Jackson, recently elected professor of laryngology, was introduced. Dr. E. E. Montgomery resigned as professor of gynecology, a position held for a quarter of a century. William Potter, president of the board of trustees, in speaking of the proposed union with the medical school of the University of Pennsylvania, is reported to have said: "There can be no such consummation unless a union can be perfected between the two institutions on an equality, and that will, in advance, be guaranteed under the new corporate title an ample and unrestricted endowment. This we believe is an impossibility, and therefore these two great medical schools will continue their friendly rivalry in the interest of medical education and relief of humanity."

The Philadelphia County Medical Society, the College of Physicians and the Pediatric Society have begun an active campaign for cleaner streets. The committee of investigation makes the following statement, any one of which acts is a misdemeanor: 1. Householders still sweep the dirt and dust from sidewalks into the streets. 2. Store sweepings of all kinds of litter are still deposited in the streets. 3. The overloaded rubbish and ash wagon still distributes its contents unmolested. 4. The householder still places ashes in improper receptacles and usually much overloads. 5. Five thousand public scavengers scatter the contents of the rubbish cans.

City Comfort Houses Urged.—Commissioner Dixon, in a statement issued February 25, on Public Health, says: "Comfort houses in cities and towns are essential to the health and comfort of our people, yet in Pennsylvania the traveling public that comes to a town for a day or two of sightseeing is not provided with lavoratories or comfort houses. These good people, often strangers in our towns, are driven into saloons in search of lavatories, and men often buy a drink before leaving, as they feel indebted to the innkeeper. In many cases this drink may be taken for the first time by one of weak character, who has not sufficient force of mind to deny himself another. It is the beginning of a sad ending for the young fellow."

GENERAL NEWS ITEMS

The Medical Society of the State of New York will meet at Utica, April 23-26.

Hotels Recommended for the New York Session.—*The Journal of the A. M. A.*, February 17, page 561, gives a list of hotels recommended by the local committee.

Medical Coeducation in New York.—The College of Physicians and Surgeons and the Long Island Medical College have decided to open their courses to women.

Dr. Smith Ely Jelliffe, New York, has been appoinetd editor of the *New York Medical Journal* to fill the vacancy caused by the death of Dr. Claude L. Wheeler.

The Bulletin of the National Association for the Study and Prevention of Tuberculosis, an eight-page publication, is issued monthly by the association from 105 East Twenty-Second Street, New York.

Physician Fined.—Dr. J. Grosner, New York, is said to have pleaded guilty to the charge of issuing fraudulent certificates of good health to food handlers. He was sentenced to pay a fine of $300 or spend thirty days in jail.

Council on Pharmacy and Chemistry.—During February the following articles have been accepted for inclusion with New and Nonofficial Remedies: Optochin, optochin hydrochlorid, Merck & Co.; tablets sodium chlorid and citrate, Squibb (Dr. Martin H. Fischer), E. R. Squibb & Sons.

Medical Unit for Asia Minor.—A medical unit, consisting of ten physicians and ten nurses, will be sent to Asia Minor to combat the epidemics which are causing many deaths there. The expedition will be financed by Hadassah, an organization of Jewish women, with branches all over the United States.

Medical Students to Get Training in Army Work.—Dr. Arthur Dean Bevan, Chicago, is authority for the following statement: "A schedule of military training has been prepared by the deans of sixty medical schools working with the Council of National Defense, and Maj. Gen. W. C. Gorgas of the United States Army has said he will detail medical officers to train this year's classes."

College Merger in Michigan.—A report states that on February 23 the regents of the University of Michigan adopted a resolution confirming the union with the University of the Detroit College of Medicine and Surgery. The terms of the merger are that the latter shall turn over its charter, real estate, equipment and hospital privileges to the university and that a fund of a million dollars will be raised for the development by the university of a graduate school of medicine in Detroit.

Opposed to Compulsory Health Insurance.—The Chicago Medical Society has issued a pamphlet condemning compulsory health insurance, and the Medical Society of the County of New York, on February 14, passed the following resolution: That this society disapproves of the medical provisions of the bill for compulsory health insurance and the appointment of a designated committee to study the subject, and directs its Committee on Legislation as delegates to the Medical Society of the State of New York to take proper measures to oppose its passage by the legislature.

McIntire Prize.—The American Academy of Medicine announces two prizes from the McIntire fund, one to be awarded in 1918, and the other in 1921. The subject for 1918 is "The Principles Governing Physicians' Compensation in the Various Forms of Social Insurance." The committee to award this prize consists of Drs. John L. Heffron, Syracuse, N. Y.; Reuben Peterson, Ann Arbor, Mich., and John Staige Davis, Richmond, Va. The subject for 1921 is "What Effect Has Child Labor on the Growth of the Body?" The committee consists of Drs. Thomas S. Arbuthnot, Pittsburgh; Winfield Scott Hall, Chicago, and James C. Wilson, Philadelphia. The prize for 1918 will amount to $100, and in 1921 to $250. Detailed terms governing the competition may be secured from the secretary of the academy, Dr. T. Wray Grayson, Westinghouse Building, Pittsburgh.

Drugless Healers.—The Illinois State Board of Health has ruled that drugless healers are to be given the same examination as physicians, except in surgery, obstetrics, materia medica and therapeutics. Drugless healers are not authorized by law to practice operative surgery or obstetrics, nor are they to use drugs or medicines internally. Examination papers on "practice" are to be graded by members of the various schools of healing selected by the state board of health for that particular purpose. Formerly drugless healers were given a comparatively simple examination in anatomy, chemistry, physiology, pathology and histology, symptomatology and hygiene. The examination now covers seven groups of subjects: anatomy; chemistry, etiolgy and hygiene; physiology and neurology; pathology and bacteriology; physical diagnosis, ophthalmology and otology, and pediatrics; gynecology, laryngology, rhinology and medical jurisprudence, and practice.

The Second Examination by the National Board of Medical Examiners will be held in Washington, D. C., June 13, 1917, and lasting about one week. The following states will recognize the certificate of the National Board: Colorado, Delaware, Idaho, Iowa, Kentucky, Maryland, New Hampshire, North Carolina, North Dakota and Pennsylvania. Favorable legislation is now pending in twelve of the remaining states. A successful applicant may enter the Reserve Corps of either the army or navy without further professional examination, if their examination papers are satisfactory to a board of examiners of these services. The certificate of the National Board will be accepted as qualification for admittance into the Graduate School of the University of Minnesota, including the Mayo Foundation. Application blanks and futher information may be obtained from the secretary, Dr. J. S. Rodman, 2106 Walnut Street, Philadelphia.

Honesty is the Best Policy.—The Lexington (Ky.) *Leader* for Dec. 31, 1916, has an editorial from which the following are excerpts: "Aug. 1, 1915, a little less than a year and a half ago, it was determined by the management to close the advertising columns of the Lexington *Leader* to the general run of patent medicine advertisements and to advertisements of intoxicating spirits, distilled and fermented. Since that date the *Leader* has rejected offers of advertising of this character to the amount of 16,625 inches. This, at the present rate of foreign advertising, would have increased the gross revenue of the newspaper $4,156.25. On and after Jan. 1, 1917, the advertising columns of the *Leader* will be absolutely free from all advertising of this nature which does not measure up to the high standard established by the management. The management of the *Leader* is ambitious to publish a newspaper which can be read aloud in the family circle, in mixed company, without embarrassment by any member of the family, young or old, boy or girl, this rule to apply to both the news and the advertising columns of the paper. It was found that this ambition could not be realized if the general run of patent medicine advertising was accepted, hence it was determined to practically eliminate all of this class of publicity. This revolutionary, and at the same time very expensive, change of policy by the Lexington *Leader,* it is confidently believed, will be appreciated by both the home reader and the home advertiser. There is a growing demand for a newspaper that is 'One Hundred Per Cent. Clean—One Hundred Per Cent. Trustworthy.' It is extremely gratifying to the *Leader* management to be able to state that, notwithstanding the large amount of what this newspaper considers undesirable advertising rejected during 1916, the volume of foreign advertising has steadily increased and will show a net gain for 1916 over 1915."

Opportunity for Young Medical Men in Public Health Service.—According to a statement just issued by Surg.-Gen. Rupert Blue, young medical men between the ages of 23 and 32 will be given an opportunity each month to demonstrate their fitness for admission to the grade of assistant surgeon in the U. S. Public Health Service. There are several vacancies in the government's mobile sanitary corps, which is now in the 119th year of its existence, but in order to be recommended to the president for commission, a physical and professional examination must first be passed. As the tenure of office is permanent and the public health officers are ordered to duty in all parts of the world, they are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate. Boards will be convened at Washington, Boston, New York, Chicago, St. Louis, Louisville, New Orleans and San Francisco, but permission to take the examination must first be obtained from the Surgeon General. The examination is searching and includes, in addition to the various branches of medicine, surgery and hygiene, the subjects of the preliminary education, history, literature and the natural sciences. The commissions will be issued as assistant surgeon and, after four years of service, the young officers are entitled to examination for promotion to the grade of passed assistant surgeon, and after twelve years of service to another examination for promotion to the grade of surgeon. The annual salaries are: assistant surgeon, $2,000; passed assistant surgeon, $2,400; surgeon, $3,000; senior surgeon, $3,500; assistant surgeon general, $4,000. When the government does not provide quarters, commutation at the rate of $30, $40 and $50 a month according to grade is allowed. All grades receive longevity pay, that is, 10 per cent. in addition to the regular salary for every five years until the maximum of 40 per cent. is reached. When officers travel on official duties they are reimbursed their actual traveling expenses.

BULLETIN EXCERPTS

Reporter, Lackawanna

Attendance at Meetings.—Some of our members get indifferent, some lazy and still others out of the habit, some of the older men think they are too old. A few of the younger men settle down, lose the opportunities of companionship and the valauble library and program. All are making a mistake. The place for a doctor for his own good on Tuesday night is the county medical rooms, whether he be young or old, knocker or booster, whether he belongs to the all wise bunch or the willing-to-learn class. The society can get on very nicely without you, it is on a strong financial basis, but you can't afford to ignore the society. We are trying to run the society on the greatest good to the greatest number basis, and one who attends and takes part in our deliberation can't fail to get his money's worth and grow. It is my firm conviction after twelve years of observation, that the men who have made good in this community are those who have attended the meetings and kept in close touch with the society. The program for 1917 promises to be better than ever before. It is gotten up for every member of the society and not for the entertainment of the officers and program committee.

The Mirror, Fayette

Planning for County Home.—Dr. Doran suggested that arrangements be made for obtaining subscriptions for building or procuring a permanent home for the county society. President Altman, at this point, asked for an expression from the members as to their desire to provide a permanent home for the county society and every member present voted affirmatively by a rising vote. The president immediately announced the names of Drs. Cochran, Crow, Lilley, Conn, and Ingraham as a committee to look after subscriptions to the fund required to provide a building for housing the society and its several activities, and announced his own subscription of $200 to the fund. It was moved by Dr. Ritenour and seconded by Dr. Rasely that the society send its president to Detroit to investigate the plan of the medical building and the methods employed by the Wayne County Medical Society in providing itself the building, with the view that this knowledge will be of value to our society in carrying our undertaking to a successful termination.. The question carried unanimously without discussion.

Weekly Roster, Philadelphia

The Pennsylvania Society to Protect Children from Cruelty received last year 2,719 "complaints," involving more than 6,000 children. These complaints on investigation revealed hundreds of children who were living in unprintable conditions of cruelty, neglect and immorality. By family reorganization, reconstruction and occasionally by definite removal of the children through the courts, each year it protects these hundreds and thousands of children. It is dependent on contributions for the support of this work, and invites cooperation in protecting children from cruelty. Checks may be made payable to C. Hermann Krumbhaar, Jr., treasurer, 419 South Fifteenth Street, Philadelphia.

The Bulletin, Snyder

Duty.—I sometimes feel as though the average practitioner thinks his whole duty in life is simply to answer calls and collect the fee, or that he is working hand in hand with that great giant of today who robs us of so much happiness, namely, Mr. Greed, or that by jealous fear of his fellow practitioner he denies himself of professional or social intercourse, or that he thinks a self-centered life is the better. This brother you do not find in our social gatherings, nor do you find him at our county medical meetings nor in our state society meetings, nor do you hear of him taking his annual vacation and worst of all when you are asked for a list of the leading physicians of your county I dare say his name was never found very high in the column.

BOOKS RECEIVED

Books received are acknowleged in this column, and such acknowledgement must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

Practical Urinalses. By B. G. R. Williams, M.D., Director of Wabash Valley Research Laboratory; Author of "Laboratory Methods," etc. 142 pages, illustrated. St. Louis: C. V. Mosby Company, 1915.

Clinical and Laboratory Technic. By H. L. McNeil, A.B., M.D., Adjunct Professor of Medicine and Instructor in Physical Diagnosis, University of Texas Medical School, Galveston, Texas. 88 pages, illustrated. St. Louis: C. V. Mosby Company, 1916.

A Laboratory Guide in Pharmacology. By Torald Sollmann, M.D., Professor of Pharmacology and Materia Medica, Western Reserve University, Cleveland, Ohio. Octavo 355 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1917. Cloth, $2.50 net.

A Manual of Pharmacology, and its Applications to Therapeutics and Toxicology. By Torald Sollmann, M.D., Professor of Pharmacology and Materia Medica, Western Reserve University, Cleveland, Ohio. Octavo of 901 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1917. Cloth, $4.50 net.

Report. From the Department of Pathology and the Department of Clinical Psychiatry, Central Indiana Hospital for the Insane, Indianapolis, Ind. 1913-1914 and 1914-1915. Volume VI. Contents: Statement of Superintendent to Board of Trustees; summary of each year's work in each department; papers read and published.

Handbook of Suggestive Therapeutics, Applied Hypnotism, Psychic Science. A Manual of Practical Psychotherapy, Designed Especially for the Practitioner of Medicine, Surgery and Dentistry. By Henry S. Munro, M.D., Omaha, Neb. Fourth Edition, Revised and Enlarged. St. Louis: C. V. Mosby Company, 1917.

The Newer Methods of Blood and Urine Chemistry. By R. B. H. Gradwohl, M.D., Director of the Pasteur Institute of St. Louis and the Gradwohl Biological Laboratories, St. Louis. And A. J. Blaivas, Assistant in the same. Sometime Technician in Pathological Chemical Laboratories, New York Post-Graduate Medical School and Hospital; and Former Assistant, Chemical Laboratory, St. Luke's Hospital, New York City. With 65 Illustrations and 4 Color Plates. St. Louis: C. V. Mosby Company, 1917.

A Manual of Therapeutic Exercise and Massage. Designed for the Use of Physicians, Students and Masseurs. By C. Hermann Bucholz, M.D., Orthopedic Surgeon to Out-Patients, Director of the Medico-Mechanical and Hydrotherapeutic Departments of the Massachusetts General Hospital, Boston, Mass.; Assistant in Orthopedic Surgery, Harvard Medical School; Assistant in Physical Therapeutics, Harvard Graduate School of Medicine. Illustrated with 89 engravings. Lea and Febiger, Philadelphia, 1917. Price, $3.25.

The Practical Medicine Series. Comprising ten volumes on the year's progress in medicine and surgery. Under the general editorial charge of Charles L. Mix, A.M., M.D., Professor of Physical Diagnosis in the Northwestern University Medical School. Series, 1916, ten volumes, $10.00. Volume IX, Skin and Venereal Diseases. Edited by Oliver S. Ormsby, M.D., Professor and head of the Department of Skin and Venereal Diseases, Rush Medical College. Series, 1916. Chicago: The Year Book Publishers, 37 LaSalle Street. Price, $1.35. Volume X, Nervous and Mental Diseases. Edited by Hugh T. Patrick, M.D., Professor of Neurology in the Chicago Polyclinic, Clinical Professor of Nervous Diseases in the Northwestern University Medical School; ex-President Chicago Neurological Society, and Peter Bassoe, M.D., Assistant Professor of Nervous and Mental Diseases, Rush Medical College; with the collaboration of Lewis J. Pollock, M.D. Series, 1916. Chicago: The Year Book Publishers, 37 LaSalle Street. Price, $1.35.

Clinical Tuberculosis. By Francis Marion Pottenger, A.M., M.D., LL.D., Medical Director, Pottenger Sanatorium for Diseases of the Lungs and Throat, Monrovia, Calif.; Professor of Diseases of the Chest, College of Physicians and Surgeons, Medical Department, University of Southern California, Los Angeles. With a chapter on Laboratory Methods by Joseph Elbert Pottenger, A.B., M.D., Assistant Medical Director and Director of the Laboratory, Pottenger Sanatorium for Diseases of the Lungs and Throat, Monrovia, Calif. Volume I: Pathological Anatomy, Pathological Physiology, Diagnosis, and Prognosis. With 105 Text Illustrations and Charts, and 6 Plates in Colors. Volume II: Complications and Treatment. With 62 Text Illustrations and Charts, and 4 Plates in Colors. St. Louis: C. V. Mosby Company, 1917. Price, $12.00.

BOOK REVIEWS

HUGHES' PRACTICE OF MEDICINE. Including a Section on Mental Diseases and one on Diseases of the Skin. Eleventh Edition, Revised and Enlarged. By R. J. E. Scott, M.A., B.C.L., M.D., New York; Fellow of the New York Academy of Medicine, and of the American Medical Association; Formerly Attending Physician to the Demilt Dispensary and to the Bellevue Dispensary; Author of "The State Board Examination Series;" Editor of "Witthaus' Essentials of Chemistry and Toxicology," "The Practitioner's Medical Dictionary," Gould and Pyle's "Cyclopedia of Medicine and Surgery," etc. With 63 Illustrations. Full Limp Leather, Gilt Edges, Round Corners. Price, $3.00 net. Philadelphia: P. Blakiston's Son and Company, 1917.

In the preface one reads, "It has again been assumed that Diagnosis and Treatment are the main business of the practitioner, and that those who use this book are anxious to find out what is the matter with their patients, and then to alleviate or cure, as the case may be." In the carrying out of this assumption one finds, for example, that the first 22 pages under Diseases of the Respiratory System are devoted to physical diagnosis, and more than five pages of diagnostic technic opens the chapter on Diseases of the Stomach. The sections on treatment are more complete, and the prescriptions more numerous, probably, than in any other work limited to 800 pages. New and rewritten articles bring the work up to date.

L. F. P.

A Manual of Physical Diagnosis. By Austin Flint, M.D., LL.D., Late Professor of the Principles and Practice of Medicine and of Clinical Medicine in Bellevue Hospital Medical College, etc. Seventh Edition, by Henry C. Thacher, M.S., M.D., Associate in Medicine in the College of Physicians and Surgeons of Columbia University; Assistant Attending Physician, Roosevelt and Lincoln Hospitals, New York. Illustrated. Philadelphia: Lea & Febiger. 1917. Price, $2.50.

One naturally thinks of Austin Flint as the father of systematic physical diagnosis in American medicine, and in picking up this new edition one is not surprised to find auscultation and percussion occupying a large part of the work. The first two paragraphs in the preface read:

"Recent advancements in the laboratory side of diagnosis have discouraged the acquisition of that thoroughness and skill in the employment of simpler methods which were so essential to the earlier masters of clinical medicine. Even among instructors the disposition to subject every difficulty in diagnosis to the x-ray, polygraph, electrocardiograph, etc., before the older means of examination have been exhausted, is daily developing. This tendency to adopt the dramatic, and slight the direct use of his unaided senses, doubly appeals to the student, for he naturally fails to foresee how often in practice he will lack the advantages of such apparatus.

"The particular need which this manual was intended to fill, and which it is expected that it will again fill, is the demand of the student and of many graduates in medicine, for simplicity, directness, exactness and skill in dealing with physical signs in health and diseases."

The reviser has taken pains to bring the chapters devoted to the examination of the heart into accord with recent advancement in the knowledge of cardiac disease, and he has done this without destroying the plain and simple style so characteristic of the author. A chapter on Physics as Related to Auscultation and Percussion has been added, and also one on Order of Physical Examination. Thirteen pages are devoted to the chapters on Examination of the Abdomen.

SOCIETIES

PHILADELPHIA LARYNGOLOGICAL SOCIETY

Meeting of Feb. 6, 1917

Extradural Abscess of the Anterior Inferior Part of the Middle Fossa Secondary to a Simple Mastoid Operation. Dr. J. Clarence Keeler presented the notes on a case: Charles M., aged 24, single, who on Jan. 1, 1914, following exposure developed coryza and right earache. Pain was relieved on the fourth day by spontaneous rupture of the drum, followed by a blood-streaked discharge. When seen twelve days later, the right ear protruded. The mastoid was red, swollen, edematous and very tender. A profuse aural discharge was present. There was drooping of the superior and posterior wall. The mastoid was opened and pus found throughout. The cells were exenterated, free drainage established and the wound closed in the usual manner. An apparently uninterrupted recovery followed and the patient was discharged during the third week. Four weeks later he was readmitted to the hospital with swelling over the right mastoid extending over the temporal region and face. There was edema of the lids partly closing the eye. Temperature 102, pulse 110, respirations 27. The mastoid was reopened. The incision was continued to the front of the ear along the zygomatic bar near to the outer angle of the lids. The zygomatic cells were unusually large and filled with pus. A large abscess was found in the temporal and zygomatic fossae which had eroded through the cranium and exposed the dura of the anterior part of the middle fossa protected by granulations. The pus was evacuated, drainage instituted and the wound closed. A rapid and uneventful recovery followed. Culture showed the pus to be pneumococcic.

Septic Thrombosis of the Mastoid-Emissary Vein Secondary to Simple Mastoid and Metastatic Abscess. Dr. J. Clarence Keeler presented the notes on Miss Lena K., aged 21, who in December, 1915, developed severe pain of sudden onset in the left ear. The tympanic membrane was red and bulging. After free incision of the drum under local anesthesia, a mixture of blood and pus was extracted by suction. The discharge continued. The pain increased. A simple mastoid operation was performed, revealing large cells over a wide area, so extensively necrosed and pus-filled as to necessitate a transverse incision. The emissary vein was exposed near its junction with the lateral sinus. On the second day after operation there was a slight chill with rise of temperature to 102.4. A cellulitis developed on the same side of the face. There were more chills and a temperature of 105.4. Leukocytes 20,000, polymorphonuclears 75 per cent. The pus culture showed streptococci. A metastatic involvement of the right shoulder and elbow developed. The wound was reopened. The sinus appeared uninvolved. The emissary vein was found thrombosed. It was ligated and resected, the sinus was opened to encourage free bleeding. The wound was closed by packing. The patient proceeded to a rapid recovery.

Profiting by the observation in this case, Dr. Keeler has since ligated the emissary veins in a case of acute bilateral mastoiditis where they were exposed to trauma. The location of the emissary vein renders it more susceptible to injury in extensive mastoid necrosis, and a more common focus of infection than has generally been supposed.

Why the End Results of Some of Our Submucous Resections Are Unsatisfactory. Dr. Louis C. Vattier states that submucous resections have in many cases failed to relieve the symptoms, because the greater portion of the bony septum or perpendicular plate of the ethmoid has not been removed by the operator, thus leaving the area designated by Ballenger "the vicious circle," unrelieved of obstruction to its drainage and aeration. In these cases the secondary operation is made through a high T-shaped incision, the procedure being otherwise similar to that used in a primary operation.

In the discussion following, Dr. Robert Ridpath called attention to the necessity of removing the ridge of the vomer, for which he uses a Hajek chisel.

Dr. George Mackenzie called attention to the necessity of seeing that the vestibules are not obstructed by the malposition of the semilunar cartilage.

Epistaxis. Dr. Charles F. Adams reviewed the common causes of nasal hemorrhage and enumerated the various general and local measures employed in its control. As a local measure the use of the Bernay splint was preferred to gauze packing. Ligation suture was recommended for bleeding from the anterior portion of the septum.

Dr. Hoyt called attention to the use of adrenalin brushed on the septum as a means of locating the source of the hemorrhage. The bleeding point will stand out as a brilliant red point on the blanched mucosa.

Spinal Therapy as Applied to Diseases of the Nose, Throat and Ear. Dr. Lawrence Simcox endeavored to show the advantages of vertebral adjustments (spondylotherapy) as an adjunct to the local treatment of nose, throat and ear conditions. He states that diseases of these organs are associated with subluxations of certain cervical vertebrae, namely, middle-ear disease with that of the fourth cervical, internal ear with the axis or atlas, eye conditions with the third cervical, laryngeal conditions with the sixth cervical, pharyngeal conditions with the lower cervical and middorsal vertebrae.

The theory is that displacements cause pressure on trophic nerve fibers, supplying the organs. These fibers make their exit at the trophic intervertebral foramina.

He claims that the reduction of these subluxations has a favorable influence on the diseases in question, claiming to have brought about cures in a number of cited cases. He depends on palpation for the diagnosis of the subluxation. He urges physicians to familiarize themselves with the teachings so that any of its possible advantages may be utilized in conjunction with such skilful medical measures as may be indicated. This is preferable to having the method exploited as a panacea by irregular practitioners.

Dr. J. Solis-Cohen stated there may be a lymph stasis at these openings which manipulation disperses.

Sidney L. Olsho, Reporter.

COUNTY SOCIETY REPORTS

BERKS—FEBRUARY

The Berks County Society met February 13, President Bucher presiding. "Electrothermic Methods of Treatment" was presented by Dr. William Schmidt of Philadelphia. In applying the electric current to the destruction of tissue the heat effects vary from a simple hyperemia to desiccation, all of which can be obtained from the high frequency current. There are three kinds: (1) d'Arsonval, lowest voltage, highest amperage; (2) Oudin, higher voltage with less heat power; (3) Tesla, highest of all, is not used for destructive purposes but for fulguration, consists in long sparks 6 to 8 inches long, used after operations like cancer to bombard wounds and lessen recurrence, and has been confused with high frequency cautery. Fulguration does not destroy tissue. Desiccation is obtained only from static machine of high power. Spark delivered from metal point to tissues is monopolar, using needle to enter cavities and just touch tissues. The spark dries out tissues. A fine enough current can be obtained to remove tissue the size of a pin head, and can be used on so delicate a tissue as the cornea. A large enough current can be obtained to remove tissues 4 inches in diameter and yet be kept always under control.

With large growths use d'Arsonval current, bipolar; for large voltage pads must be used. If two pads of same size are used, tissues will be destroyed straight through. If one large pad and one small pad are used the current is concentrated at the small pad, while the large pad disperses the current. Currents producing heat are painful when applied to large growths; for such, general anesthesia is necessary, while for smaller growths hypodermic injections of 2 per cent. novocain locally are sufficient. Cancer of cervix can be treated without any anesthetic.

Dr. Schmidt then showed many pictures of diseases treated electrothermically, including moles, keratosis, epithelioma, sarcoma and melanotic growths.

Clara Shetter Keiser, Reporter.

BLAIR—FEBRUARY

The Blair County Society met February 27 with thirty members present. A paper on "Phenolsulphonephthalein and Other Kidney Tests" was presented by Dr. J. R. T. Snyder, and discussed from the medical standpoint by Dr. A. S. Kech and from the surgical side by Dr. James S. Taylor. The plan has been inaugurated of having a member present a paper to be discussed by one or two physicians. The Society meetings should be more interesting, the subject more thoroughly covered, and voluntary discussions stimulated. Formerly we have had voluntary discussions only of the papers, but we trust that the method of having assigned discussors will be of more service to the members.

Action was taken on the bill presented by the antivaccinationists at Harrisburg. The society unanimously voted to help try to "kill" this measure which would be a menace to the health of the state; our legislators are to be approached personally and by writing, as to our stand in the matter. A lively discussion was aroused by the information that the Poor Directors have not paid and will not pay the regular fee of $5 for examining indigents for the county home. They will compensate the examining physician with $3 only. The first case of the kind to be reported to the censors will be made a "test case," and we trust that our fee bill will be strictly adhered to.

It has been the custom at the Altoona Hospital to charge a stipulated amount for all laboratory work done on pay-ward and private cases. In many cases the laboratory tests have not been made, as per wish of the Bureau of Medical Education and Licensure, to the detriment often of the patient, and to the loss to the intern in his schooling. A joint meeting of the Board of Trustees and Staff of the hospital was called the first of the month, at which this matter was thoroughly threshed out. The laboratory has been completely fitted out for all tests, and now we wish to make use of it. The plan under consideration is to raise the weekly board of pay-ward, semi-private and private patients proportionately, and this extra charge to defray the running expenses of the laboratory, the salary of the technician and to warrant a salary to the pathologist. All laboratory tests and tissue examinations will then be done free and on every patient.

James S. Taylor, Reporter.

CHESTER—FEBRUARY

The Chester County Society met at the Chester County Hospital February 20, with President Hoskins in the chair.

A clinic of cases in the hospital was conducted by Dr. W. T. Sharpless. The first case presented was that of a boy of 16 years, an inmate of a penal institution, who was sent to the hospital showing 2 per cent. sugar in the urine. He was put on starvation treatment for three days and then given beef broth and sodium bicarbonate instead of the usual whisky and sodium bicarbonate outlined in the Allen treatment. All sugar disappeared from the urine within three days. Following this he was given an increasing number of calories each day, and a special diet was charted showing the exact number of grams of protein, carbohydrate and fat, starting the first day with 168 calories and continuing up until the limit of sugar tolerance was reached. The boy is now improving steadily and is taking 1500 calories a day. Dr. Sharpless emphasized the importance of having diabetic patients receive institutional treatment because of the impossibility of regulating carefully the sugar intake and the caloric estimation in private houses.

Dr. Sharpless then gave an outline of the results of treatment of patients with pneumonia in the wards since January 1. There were eighteen cases of lobar pneumonia and six of bronchopneumonia, making a total of twenty-four cases, with four deaths. Of the patients who died, one had chronic nephritis with dilated heart, the pneumonia probably being a terminal infection. The second, a child 6 months old, with practically no resistive powers, was a case of malnutrition. The third was a case of pneumonia occurring in the late stages of typhoid fever, when the normal resistive powers were very much reduced. The fourth was a case of true pneumonia which ran its usual course with a crisis, the temperature remaining normal for five or six days followed by sudden onset of chills, and fever with temperature ranging as high as 106 F. with evidence of meningitis and death within a few hours. Necropsy on this patient showed pneumococcus meningitis and pneumococcus endocarditis. Culture taken from the valves of the heart showed pure culture of pneumococcus; there was also a greatly enlarged spleen. The spinal canal was filled with pure pus which also showed pneumococcus by culture. The right lung showed unresolved pneumonia; the left, active pneumonia.

The third case discussed by Dr. Sharpless was that of a sailor who had come to the hospital for treatment of morphin addiction. He had been in the habit of taking 7 to 8 ounces of laudanum a day but since the passage of the Harrison Antinarcotic Law he had been unable to secure the drug and wished to be cured of the habit. The history that this patient gave showed evidence of some biliary obstruction. He said that for some time he had noticed that his urine was highly colored and that he had some pain in his abdomen. There were signs of developing jaundice and marked evidence of enlargement of the liver. He grew steadily worse and the jaundice deepened. There was so much evidence of malignant disease that operation was not advised. The patient died and necropsy showed numerous calculi in the biliary and pancreatic ducts. There was no macroscopic evidence of cancer although sections are being examined at the present time.

A fourth case discussed was that of a patient who died within four hours of admission to the hospital. In the limited time permitted for examination, however, a specimen of urine was examined which showed a considerable amount of pus. The autopsy showed a large pyonephrosis. A Gram positive diplococcus was found in the kidney and also in the lung, showing that the patient had probably died of the terminal pneumococcus infection.

The fifth case presented showed some remarkable variations in the temperature of a child with coincident variations of leukocyte count, all the more remarkable because the case resulted in complete recovery. Within a few hours at one point the temperature ranged from 105 to 97 F. and the leukocyte count ran as high as 84,000. No definite focus of disease was found, but symptoms suggested abscess of the lung. There was no pus in the urine and careful examination of the long bones showed no evidence of osteomyelitis. The Roentgen ray also showed nothing.

Dr. Mermon, resident physician of the hospital, gave an interesting talk on infant feeding, showing the advantages of using the caloric method in conjunction with percentage method of feeding.

Dr. Thomas G. Aiken, assistant visiting physician, showed an interesting case of a colored woman with hyperthyroidism following premature menopause probably the result of an operation performed some years before. The interesting features of the case were the evidence of profound toxemia, rapid pulse, albumin and casts in the urine, and abnormally high diastolic blood pressure. The case was discussed by several members present and the advisability of giving ovarian extract to counterbalance the overactive thyroid was taken into consideration.

Miss Elsie MacKenzie, who had recently returned from work with the American Ambulance in Paris, gave a brief description of the treatment of burns. Dr. Rogers of the Chester County Hospital also gave an account of a case.

Henry Pleasants, Jr., Reporter.

DAUPHIN—FEBRUARY

The Dauphin County Society held its regular meeting in the Academy of Medicine Building, February 6, at 8:30 p. m., President Dickinson presiding.

Dr. J. B. McAlister spoke on the proposed amendments to the Workmen's Compensation Act that the committee on public policy and legislation will present to the state legislature. They have decided to present only two at this time: First, that the disability period be extended from fourteen to thirty days; second, that the maximum fee for surgical operations be changed from $75 to $200. Dr. McAlister gave several good reasons why these amendments should be presented, and told us some of the obstacles in the way that may prevent them being acted on or adopted at this session of the legislature. He points out that there is little or no disposition on the part of the legislature (especially the senate) to disturb the compensation law because of some adverse criticism of certain newspapers. There will be opposition from insurance companies because they will decrease their profits. There will be criticism offered against the profession because in some cases exorbitant bills have been rendered and unnecessary visits made by some unscrupulous physicians. Employers of labor will object because of increased expense.

Dr. Whipple gave a few remarks and observations of the Workmen's Compensation Act from his experience as surgeon for the Bethlehem Steel Company at Steelton. He considered the act in three phases: As it affects the employee, the employer, and the physician. He states in some respects the law has worked well for all concerned; in others, it has worked poorly and indeed has inflicted a burden, which has been felt chiefly by the physicians and the hospitals. The injured employee has after a period of disablement received a definite, fixed portion of his wages automatically, and about which there can be no dispute. Disability suits with their attendant waste of time and money have been abolished. Many employees, who heretofore through pride have hesitated to ask aid from an employer, who was only too willing to help them have been able to endure a period of incapacity without worry, knowing that a certain fixed sum was assured. In the interests of the employee Dr. Whipple feels that the compensation should begin with disability, and that surgical attention should be continued until recovery. The latter has been the practice of many large corporations for many years. The employer in general in spite of his fears before the passage of the act, has come to consider compensation advantageous, chiefly because it has eliminated the bickering and pussy footing which was the rule, especially in cases where his liability was in question.

Compensation has also awakened a general interest among manufacturers in safety, welfare and hygiene work. Has brought about the standardization of first aid treatment and elevated minor surgery to the rank of the specialist.

Except for the very minor injuries, the doctors and hospitals, designated to look after injured employees by the insurance companies, have lost out. The sum specified by the act has been, except for almost trivial accidents, inadequate to pay for their care. In major cases, requiring hospital care, the maximum fee has been so ridiculously low that even if it satisfies the hospital rates, which in many instances it does not, nothing is left for the surgeon's services. The presence in the State Compensation Board of a medical referee seems essential before the profession will receive the consideration due them. The law is not perfect and can be improved but it has done much good for the vast number of injured employees. The physician, of all parties intimately concerned with its operation, has profited least. We cannot say he has actually suffered, because many of us have received fees from many cases, which heretofore were recipients of hospital dispensary charity. With the proposed amendments, which he believes will be acted on favorably, Dr. Whipple feels the physicians of the state can rest assured that future experiences with the act will be much more just and beneficial to them.

Dr. Blair also gave an interesting talk on the much talked about health insurance.

A. P. Isenberg, Reporter.

LEBANON—FEBRUARY

The Lebanon County Society met in the courthouse, February 13, at 2:45 p. m. Dr. A. S. Reiter read a paper on "How to Diagnose Pneumonia Early." He thought a diagnosis could be correctly called early if made within 24 to 30 hours after the onset, but he also believes that in the majority of cases the physician does not see the case so soon, thereby making early diagnosis infrequent. He finds that in most cases the right lower lobe is the first to be involved and that the most prominent initial symptoms are cough, rusty sputum and fever. Pain does not play an important part in many cases early. One must carefully guard against making a diagnosis of pneumonia when it is bronchitis. The character and magnitude of the râles aid in this point; also the sputum. Gastric symptoms must not be treated lightly, for the most dangerous cases of pneumonia may have their onset in a vomit or a cramp.

A lively discussion followed the reading of the paper. Drs. Witmer and Walter could see no preeminent reason for an early diagnosis and believed that watchful waiting was the proper course to take. Dr. Seth Light treats all doubtful cases as pneumonia.

George R. Pretz, Reporter.

PHILADELPHIA—DECEMBER

The Philadelphia County Society met December 27, at 8:30 p. m., with President McLean in the chair.

"Production of Medical Photographs" was presented by Dr. C. B. Longenecker: As a precaution against failure a uniform light of given speed is an essential. I use six lamps with parabolic reflectors, each lamp consisting of a 500-watt tungsten nitrogen bulb, each lamp being provided with its own switch. The lights are arranged in a semicircle about the patient and by means of the switches and extra hooks on which to hang these lamps any condition of lighting can be produced and exposures made in from one to four seconds. As this illumination is entirely independent of daylight the exposure can be made at any time, day or night, and with a given amount of illumination failures are reduced to a minimum. Being always in readiness it is not necessary for the patient to make a second trip for his picture. The cost of the installation is approximately $12 per lamp.

A paper on "The Beginnings and Needs of Philadelphia in Postgraduate Medical Study" was read by Dr. John B. Roberts (see page 421).

"The Use of Corpus Luteum Extract Hypodermically in the Control of the Nausea of Pregnancy" was presented by Dr. John C. Hirst: Every woman is absorbing corpus luteum constantly. When pregnant, this absorption ceases and nausea begins. When corpus luteum of pregnancy begins to absorb, nausea ceases. Hence, intramuscular injections of corpus luteum extract should supply the deficiency and control the nausea. The technic comprises deep, intramuscular hypodermics of 1 c.c. soluble extract corpus luteum, daily for twelve doses. No effect is noticed, as a rule, until the fourth or fifth dose has been given. Results observed are thirty-three out of forty cases, four of them being cases of pernicious vomiting, completely relieved, and all four of the pernicious cases relieved.

A paper on "Oral Sepsis—A Note of Warning with Regard to Its Treatment" was read by Dr. James M. Anders: I fully appreciate the benefit to the human race resulting from the recognition of local septic foci as a cause of secondary infections, both acute and chronic; also the debt which medicine owes to the early contributions on this subject by Miller, Rosenow, Billings and Hartzell. The list of acute and chronic diseases which may be caused by focal sepsis is one of great length. We are in need of higher average standards of knowledge of the relation of diseased tooth roots to secondary systemic diseases; and this is particularly true of the dental profession. On the other hand physicians should be cautious not to take away from the masticating surface without reliable scientific evidence of such necessity. Within the past six months not less than six leading dentists have declared to me that countless teeth are being removed without justification merely because physicians have so decreed. Before directing that the teeth of their patients be removed physicians should seek a consultation with a specially skilled dentist. In well authenticated cases, in which one or two teeth were the seat of peripheral infection physicians have directed that all remaining teeth be extracted. One of Philadelphia's best known specialists in extraction was requested by a physician to pull out all of a certain patient's teeth, twenty in number. This he courteously but firmly declined to do. A Roentgen-ray examination in this case showed nothing pathologic, except impaction of one of the wisdom teeth. An investigation by the writer has revealed the fact that the offices of not a few dentists are truly over-burdened with Roentgen-ray plates. These they are supposed to respect, often against their better judgment. It may be stated that results obtained by expert roentgenologists from an examination of teeth have shown much faultiness in operative work. This has given rise to the exercise of greater care in the operative work of the dental surgeons.

In cases of secondary systemic infection it is to be remembered that in addition to the foci of infection about the teeth there may be additional foci in the tonsils and sinuses demanding attention. In the majority of cases of chronic septic foci diagnosis is difficult, peri-apical infection or abscess offering the greatest difficulty. Here even the Roentgen ray may fail to give reliable data. The dental specialist of today investigates the condition of the pulp canal from apex to extreme base. Should the case be still in doubt he should aspirate the peri-apical space under strict antiseptic precautions and culture the withdrawn material. Before consulting an expert dentist the physician in charge of a given case should eliminate the possible presence of all foci of infection other than those that may be present in the mouth. In such preliminary examinations the advice of a competent nose and throat specialist is necessary. It is not my purpose to minimize the importance of latent chronic foci as a cause of secondary systemic infection, nor to depreciate investigations in this new and promising field of endeavor. My object is rather to utter a note of warning with a view to lessening what I believe to be an unwarrantable and ofttimes ruthless sacrifice of the masticating surface; further to spare the medical profession the adverse criticism of the future by a broader conception now of the subject of oral sepsis.

"The Interrelation Between the Physician and the Dentist on the Question of Oral Infection and Systemic Disease" was presented by I. N. Broomell, D.D.S.: At no time in the history of dentistry has there been such a need for the cooperation of the medical profession as at present; happily, also, at no time has there been so much promise of cooperation as at the present time. Since Miller in 1889 called attention to oral sepsis as a possible causative factor in constitutional disease there has been the unfolding of the fact of a new epoch in dental practice. The average dental office bears tangible evidence of this epoch in the ever multiplying film and plate. The subject of systemic disease through mouth infection, which of late has received so much attention, is I believe in danger of being overemphasized. The situation resembles the overenthusiasm too frequently following improved theories. Conservative action is needed to overcome the wholesale condemnation of human teeth. The dental profession fully appreciates the importance of the prevailing opinion that peri-apical infection is a possible etiological factor in many remote pathological conditions, and that the indifferent treatment of pulpless teeth is perhaps responsible for a large percentage of such infected areas. Until satisfactory explanation is given, however, of the occurrence of such infected areas, no definite progress can be made. That imperfectly filled root canals are in some way responsible for a large percentage of these conditions is the general belief. On the other hand a certain percentage of apical infections are present about the roots of teeth with perfectly filled canals.

Just as there is preventive medicine there is preventive dentistry and, through neglect of this, infection of the most dangerous kind may be established. Dentistry will not be a party to the wholesale removal of teeth simply because the physician advises their extraction. An illustrative case is that of a young man showing persistent albuminuria in whom two teeth were ordered to be extracted by his physician without dental consultation. A dentist, however, was consulted and the thermal and light tests proved the vitality of both pulps, eliminating apical infection. Another case was that in which two upper molars were removed for relief of facial neuralgia. Subsequent removal of an impacted third molar in the ramus of the mandible showed this to have been the cause of the trouble. Other cases could be cited showing the daily sacrifice of healthy teeth. The remedy lies in the expression by the physician of a more substantial confidence in the dentist.

"Appendicitis Familialis Contagiosa" was presented by Dr. M. D. Bloomfield: From a considerable experience in appendiceal diseases I am able to report fourteen families who were treated by Deaver, Behrend, Warmuth, Ginsburg, Hutchinson and Heineberg. In these families on careful inquiry the fact has been ascertained that each member had been in direct personal contact with the parties who had suffered the acute attack, though living apart. All of the patients presented an identical pathology. Inasmuch as every case of frank appendicitis shows a definite pathology and that the local lesion found is of the inflammatory, irritant and destructive type, and that bacterial cultures taken from these removed appendices when injected into the blood stream of another animal are capable of producing identical lesions of the appendix, and, furthermore, in view of the extreme prevalence of this disease, its occurrence in epidemic form and the fact that it is a systemic infectious disease, I believe that this disease should be considered as worthy of being classified among the transmissible types of infectious diseases.

Samuel McClary, III, Reporter.

PHILADELPHIA—JANUARY

The Philadelphia County Society met, January 10, at 8:30 p. m., with President McLean in the chair, and presented a symposium on the "Rights of the Unborn Child."

The subject "From the Legal Aspect" was presented by Hampton L. Carson, Esq.

Rev. A. J. Schulte read a paper on the subject "As Viewed by the Catholic Church." In order that an action may be truly righteous, it must be good from its inception to its consummation. No end, however legitimate, can justify a resort to means that are in themselves wrong. Thus, it is wrong to take life of an innocent being. If an action good in its object happens to have two effects, the one good and intended, the other bad but not intended, this act is justifiable, provided that it is necessary, that the good overbalances or compensates the evil, and that the evil be not a means to the end but an unavoidable adjunct. A being consisting of a body and soul substantially united is a human being, however undeveloped that man may be. At every stage of its life natural and inborn rights cling to it. From the moment of its conception the fetus has a natural right to develop in its natural habitat until the time arrives to see the light of the world.

Abortion may be direct or indirect. Direct abortion is a wilful violation of the laws of God, of nature and ethics; hence, for the reason of the importance of its object, murder, a mortal sin. Even suppose the mother is in danger of death, abortion is not allowed, for it would be the direct killing of the fetus. To procure an abortion when the fetus is the cause of the fatal illness of the mother is not permitted by a decision of the Holy Office in 1895. For a proportionately grave cause it is allowed to procure abortion indirectly. It is allowed to perform an indifferent act from which a twofold effect may follow, the one good, which is intended, and the other bad, which for grievous causes is permitted. It is never allowable to kill the child to save the mother, or to kill the mother to save the child; but, if the mother be suffering from a fatal disease, not otherwise, it is permissible to give the mother a drug which has for the mother a curative power, or do an operation, as appendicitis, although it may at the same time cause an abortion. But the drug or operation must have a real therapeutic value and not cure the mother solely by causing an abortion. Craniotomy is illicit even if it is foreseen that both the mother and the infant must die, because it is the direct killing of an innocent being. Better that a million mothers die than one innocent creature be killed. The Catholic Ritual prescribes that if a woman die in pregnancy the fetus should be extracted without delay. An obligation rests upon the physician to perform the Cesarean operation, that the fetus may be baptized and its life saved should it be possible. Every fetus, no matter how much it has the appearance of a corpse (except only in the case when advanced or complete decomposition or putrefaction has taken place) must be baptized. This obligation to baptize exists even when the pregnancy be of but a few weeks, since the human fetus is believed to be animated by a rational soul from the very first moment of conception.

An ectopic fetus enjoys as much right to life as any normal conception. It is not permitted to destroy directly an extra-uterine pregnancy. It is permissible, however, to cut out the organ which is the abode of the ectopic fetus, if the operation being omitted the mother will surely die, although from it the death of the fetus will ensue. For in this case the death of the fetus occurs only indirectly, since the action does not directly and intentionally affect the fetus, but the organ in which the fetus is enclosed. His Grace, the Achbishop of Melbourne, says "Risks and dangers are incidental to the married, just as they are to several other states. They are no greater than the dangers of the battlefield, or the mine, the factory or the forest, which are the lot of men. The woman was warned of old, 'I will multiply thy sorrows and thy conceptions, in sorrow shalt thou bring forth children.' If she is not willing to run the risks or suffer the sorrows of married life, let her remain single, but if she enters the married state she must, as a rule, bear with the hardships of her state or, in extreme cases, abstain from the use of marriage." Miscarriage may result from causes so remote as to elude the watchfulness of most conscientious mothers; but some degree of responsibility must attach to a miscarriage which could have been foreseen and prevented; because, anyone, who by virtue of his office and condition assumes the care of an object, is held in conscience to such a degree of responsibility for the safety of his trust as will justly compare with its value. There is nothing more precious among earthly goods than human life, and nobody charged more rigorously with the care of intra-uterine life than the mother; therefore, the neglect of this sacred trust is a violation of office, not assumed from man, but from God himself, in matrimony.

Dr. Barton Cooke Hirst read a paper, "From the Medical Standpoint." The right of the unborn child to life is indisputable, but, as a matter of fact, this right is more frequently denied during intra-uterine life than at any other period of man's existence for several reasons. The inadvertent and often unavoidable loss of life from the spontaneous miscarriage. Statistics show that for every four children delivered at term, there is one miscarriage before the viability of the fetus. It is in this group of cases that much will be accomplished by the present movement in favor of prenatal care. There should be the dissemination to the general public of a wider knowledge and appreciation of the right of the unborn child to life. This can be accomplished by prenatal clinics, the greatest good being accomplished by this means among the poorer and more ignorant classes. The appalling frequency of criminal abortions is one of the most serious sociologic problems at the present time. The question of the day is whether it is better to prevent conception or to destroy the life which already has been instituted. People the world over apparently are determined to regulate the birth rate by one means or another, for economic reasons, selfishness, love of luxury, disinclination to bear pain, the unmistakable loosening of moral control in the younger generation, etc.

Occasionally the sacrifice of embryonal life is not only justifiable, but a duty incumbent on the conscientious physician. Problems are presented from pregnancy in women suffering from cardiorenal disease, toxemia and tuberculosis. The conscientious physician should be untrammeled in his decision. With a full sense of his responsibility to God and man and a consciousness of the duty he owes his profession he should be allowed to follow the instinct to save life, implanted more and more deeply in the medical mind as his experience grows. Neither the law nor the church, always in arrears in medical knowledge, should oppose an obstacle to medicine's life-saving instinct. Peculiarly, neither the law nor the church condemns the violation of the Sixth Commandment. Has not the woman herself a right to life and the right to demand the sacrifice of her embryo if its presence insures her destruction? In what other light can it be regarded than as the potential murderer of its host, the mother? The decision of this momentous question must be left to the physician.

A paper on "The Rights of the Wife and Mother" was read by Dr. S. Adolphus Knopf, New York. To me there is nothing more sacred than the life of the child as it is carried under the heart of a healthy mother; and only if it cannot be born without endangering the life of the parturient woman can the right of its existence be considered of secondary importance. In this connection I would state that the judicious prevention of conception has nothing whatsoever to do with abortion. Unfortunately our New York State laws and even our Federal laws make no distinction between the prevention of conception and the performing of an abortion. Were statistics available of the mothers, married and unmarried, who are chronic invalids as the result of attempted abortion there would be appalling evidence of the danger of such criminal procedure. Will any one say that a wife and mother has not the right to prevent the bringing into the world of a child tainted by syphilitic heredity or gonorrheal blindness? In such cases of disease the intelligent mother, wisely instructed by her physician, has indeed a sacred right to prevent conception. Statistics which I used before the American Public

Health Association show, I believe, that not only the distinctly diseased woman, but the poor woman who has already more children than she can take care of, has a right to use contraceptive methods; also that it is the part of wisdom and a duty to society. The larger the family of the poor, the more child labor, the more disruption and irregularity, and the more frequently we find a lower standard of life and morals in general. There can be neither medical, legal, nor moral reasons why the right to be the mother of finer and physically, mentally and morally better children, should not be granted to every wife and mother.

That judicious birth control does not spell race suicide but race preservation has been irrefutably demonstrated by the reports from Holland. I know I venture on dangerous ground in the suggestion of a social, moral and economic value in imparting birth control advice to the honest young men and women, physically and morally strong, who would marry did they know they could restrict their family to a few children whom they could raise well. Prof. Robert J. Sprague in an address before the American Genetic Association lamented the fact that among the graduates of our women's colleges, only one-half ever marry, and that the average number of children per graduate is less than one. I venture to prophesy that when birth control as a means of encouraging early marriages will not be frowned on, the greater number of the other half of the graduates who do not now marry will do so and bring at least three children into the world. In Australia and New Zealand the restriction of families is almost universal. Yet these two English colonies have furnished to their mother country in these hours of struggle the most efficient, and physically and mentally best equipped regiments. And France, of whose low artificial birth rate we used to hear so much, is today presenting her splendid spectacle of utter efficiency because only the finest of her people have survived, and the chief factor there had admittedly been contraception. Our population today of over 100,000,000 has been doubling itself on an average of once in less than twenty-five years since 1790. In the state of New York we have observed that the proportional increase among the insane is double that among the sane population. Strange as it may seem there is among the medical profession an element which believes that the matter of birth control does not concern them.

Samuel McClary, III, Reporter.

YORK—JANUARY

The York County Society met in Colonial Hotel on January 4 and officers were elected for the ensuing year. Following the business session the members with their invited guests adjourned to the banquet hall where the annual dinner was served. Dr. George E. Holtzapple was toastmaster for the evening. Dr. J. A. Melsheimer reviewed the excellent record of the society during the past year and called attention to the fact that, with its 112 members, it is the seventh largest in the state. The incoming president, Dr. C. W. Eisenhower, bespoke the earnest cooperation of all the members in the work of the coming year.

Dr. C. A. E. Codman, president of the state society, was the next speaker. After felicitating the society on the presence at the banquet of its only remaining founders, Drs. F. W. Meisenhelder, Sr., and B. F. Spangler, Dr. Codman spoke at length concerning the various bills affecting the profession that are likely to come before our state legislature. He warned the members that it is the duty of everyone of them to help exert every influence possible in order to prevent the introduction as well as the passage of measures which will be a detriment to the profession. Dr. Codman discussed two bills in particular, namely, the Workmen's Compensation Act, which is likely to be amended, and the Health Insurance Bill. This latter bill led him to declare that people of the present day are rapidly turning toward socialism, and that the proposed measure is rampant with socialistic ideas, which, if passed, would create no end of difficulties for the physician. Dr. Codman read portions of the tentative plan of the bill, particularly those having to do with the services of the physician, how he is to be employed and the provisions for his payment. In referring to the Workmen's Compensation Act he said that the physicians of Pennsylvania feel that the time has come for changes in the bill. First and foremost, he pointed out, it is necessary to have a physician as a member of the board, a physician whose hands are not tied and one who is interested in no way in any line of industry. Other proposed changes, said Dr. Codman, are that there should be an advisory council, or rather a board of appeals; that the period of disability should be increased from fourteen to thirty days; the elimination of the major and minor clause, and to increase the allowance for medical service from $75 to $200.

Others who responded to toasts were Drs. T. B. Appel and J. P. Roebuck of Lancaster; Dr. J. R. Lehman of Mountville; Dr. E. S. Stambaugh, retiring secretary; and Robert S. Spangler, assemblymen from the York city district.

The banquet committee, Drs. Melsheimer, Stambaugh and Holtzapple, received much deserved praise for the efforts put forth to make the forty-fourth annual meeting the most successful in the history of the society.

Charles H. May, Reporter.

YORK—FEBRUARY

The York County Society met in the Colonial Hotel on February 1 with President Eisenhower in the chair.

After the usual business session Dr. Thomas B. Futcher of Johns Hopkins University conducted an instructive medical clinic. There were presented cases of cardio-vasculo-renal disease, the blood dyscrasias; a case illustrating certain late manifestations of lues; two cases of diabetes mellitus with gangrene; and one of recovery from bichlorid poisoning. In discussing several examples of valvular insufficiency, Dr. Futcher laid great stress on the rôle played by the tonsils as a portal of entry and emphasized the interrelation existing between tonsillitis, rheumatism, and infections of the heart valves. While deprecating the indiscriminate removal of tonsils, simply because of their size, he advocated their extirpation in such cases as a step toward lessening the danger of reinfection. Attention was called to the marked value of absolute rest in bed and proper diet in the early stages of decompensation, and to the necessity of the use of absolutely fresh preparations of digitalis. Treatment by radium was advocated in splenic anemia; this failing, splenectomy. A case of splenomyelogenous leukemia with R. B. C. 1,960,000, W. B. C. 1,112,000 and hemoglobin, 40 per cent., was shown. In this disease salvarsan and diarsenol have been used with but indifferent success. Baetjer at Johns Hopkins has had good results from radiation over the spleen itself. Probably the best internal medication is benzol, but the blood count must be watched during its administration for fear of causing a leukopenia. Radium treatment, in properly regulated doses, offers the best hope of permanent benefit. The entire clinic was most practical, and all the more appreciated because of Dr. Futcher's marked attention to the therapy of the different diseases presented for his consideration. CHARLES H. MAY, Reporter.

NECROLOGY

IN MEMORIAM—FRANK B. STATLER, M.D.

(Resolutions adopted by the Cambria County Medical Society, Feb. 8, 1917.)

In formally recording the death of Frank B. Statler, M.D., it is the duty of the Cambria County Medical Society to express in some degree its estimate of his life and character; therefore be it

Resolved, That the Cambria County Medical Society hereby bears willing testimony to the high moral character, the scientific culture, and the friendly and noble mental tone of Dr. Frank B. Statler. He was untiring and unselfish in the performance of his professional duties, and the memory of his helpfulness must be indelibly impressed on the minds of hundreds of his clients. His home life was so peaceful and loving that it became the strongest inspiration for his most manly efforts. He was an enthusiastic patriot, and in the service of his country was ready to make the supreme sacrifice in the preservation of its integrity. He was loyal to his medical brethren and the organizations which kept him in touch with scientific progress. He faced death without fear because it terminated a life untinged by regret or despair.

Resolved, That this society formally declares that his name shall be placed on its roll of honor.

While tendering its sincerest sympathy to his wife and daughter for their irreparable loss this society rejoices with them that the acknowledged honor and dignity of his character and his busy useful life are the unimpeachable evidences which prove he has not lived in vain.

THE TRUTH ABOUT MEDICINES

NEW AND NONOFFICIAL REMEDIES

Since publication of New and Nonofficial Remedies 1917, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies":

TABELLAE DULCES ARISTOCHIN (WESTERN), 1 GR.—Each tablet contains aristochin 1 grain with cocoa, sugar and saccharine as vehicles.

TABELLAE DULCES HEROIN (WESTERN), $\frac{1}{100}$ GR.—Each tablet contains heroin $\frac{1}{100}$ grain with cocoa, sugar and saccharine as vehicles.

TABELLAE DULCES NOVASPIRIN (WESTERN), $\frac{1}{4}$ GR.—Each tablet contains novaspirin $\frac{1}{4}$ grain with sugar, starch, liquid petrolatum, saccharine, curcuma and oil of lemon as vehicles.

TABELLAE DULCES TANNALBIN (WESTERN), 1 GR.—Each tablet contains tannalbin 1 grain with cocoa, sugar and saccharine as vehicles.

TABELLAE DULCES TERPIN HYDRATE WITH HEROIN (WESTERN), $\frac{1}{100}$ GR.—Each tablet contains terpin hydrate $\frac{1}{2}$ grain, and heroin $\frac{1}{100}$ grain, with cocoa, sugar and saccharine as vehicles. Western Chemical Company, Hutchinson, Minn. Accepted for the Appendix to New and Nonofficial Remedies (*Jour. A. M. A.,* Feb. 10, 1917, p. 461).

PROPAGANDA FOR REFORM

GLYCEROPHOSPHATE COMP. AMPULS, 1 CC., SQUIBB.—The Council on Pharmacy and Chemistry refused recognition to Glycerophosphate Comp. Ampuls, 1 Cc., Squibb, each said to contain sodium glycerophosphate 0.1 Gm., strychnin cacodylate 0.0005 Gm., and iron cacodylate 0.01 Gm., because the name did not indicate the potent ingredients and because the administration of a mixture of sodium glycerophosphate, strychnin, cacodylate and iron cacodylate is irrational. In recognition of the Council's conclusion, Squibb and Sons state that the sale of the ampules has been discontinued. This cooperation in the work of the Council on Pharmacy and Chemistry is gratifying (*Jour. A. M. A.,* Feb. 3, 1917, p. 388).

EMETINE IN DYSENTERY AND PYORRHEA.—Emetine is accepted today as an almost ideal specific against amebic dysentery. Experience indicates that by its use abscess of the liver can be prevented and even cured. When a differential diagnosis between amebic and bacillary dysentery cannot be made, emetine may be of diagnostic value because improvement follows from its use if the case is amebic. In neglected cases and some other forms of the disease the emetine treatment may fail of complete success. As a direct cure for pyorrhea emetine seems to have failed, not because it does not act on the ameba which are found in the pyorrheal pockets but because pyorrhea is not caused by ameba (*Jour. A. M. A.,* Feb. 3, 1917, p. 374).

THE PHENOLSULPHONEPHTHALEIN TEST. — It has been assumed that excretion of less than 60 to 80 per cent. of phenolsulphonephthalein in two hours is an indication of renal insufficiency. It has been found, however, that in certain experimental conditions, phenolsulphonephthalein may be destroyed in the body and therefore not appear in the urine although the kidneys function normally. If this condition is found to occur in clinical cases the interpretation of the tests may have to be limited to this: an excretion of 60 to 80 per cent., i. e., a positive result, within two hours after the injection of the phenolsulphonephthalein is evidence of satisfactory renal activity (*Jour. A. M. A.,* Feb. 3, 1917, p. 379).

THE WILLARD PYORRHEA TREATMENT. — After defrauding the public of amounts estimated by the federal investigators at $75,000 a year by means of a fake cure for pyorrhea, F. W. Willard, M.D., D.D.S., has been denied the use of the United States mails. The business of the Willard concern, apparently owned by Oren Oneal, consisted of a mail-order plan of a so-called home treatment for pyorrhea or Riggs' disease (*Jour. A. M. A.,* Feb. 10, 1917, p. 477).

SARGOL.—The case of the United States against Wylie B. Jones and H. E. Woodward, proprietors of "Sargol" came to an end, Jan. 30, 1917, after a trial lasting thirteen weeks. Jones was fined $20,000 and Woodward was fined $10,000. Sargol was a nostrum of the get-fat-quick variety; as an alleged "flesh builder" it was advertised extensively and intensively by its exploiters (*Jour. A. M. A.,* Feb. 3, 1917, p. 381; Feb. 10, 1917, p. 468; Feb. 24, 1917, p. 642).

FATE OF TRYPSIN IN THE STOMACH.—Judging by recent experiments, it appears that the proteolytic enzyme of the pancreas isolated as trypsin is capable of withstanding a rather long digestion in presence of hydrochloric acid and pepsin provided that sufficient protein is present to combine with all or a part of the acid and so bring the free acid down to a certain level. From the observations it seems possible that some tryptic digestion may occur within the stomach when the free acid is low from combination with protein. The results do not, however, even remotely suggest that the administration of a few grains of the various commercial products claimed to contain trypsin or pancreatin would have the slightest therapeutic significance (*Jour. A. M. A.,* Feb. 17, 1917, p. 554).

Firwein.—The Council on Pharmacy and Chemistry reports that Firwein (The Tilden Co.) is sold under the claim that when swallowed it has a "predilection" both for the bronchial mucosa and also for the genito-urinary organs. The Council finds that little information is given in regard to the composition of Firwein. As the composition of Firwein is secret, the therapeutic claims unwarranted and its use irrational, the Council declared it inadmissible to New and Nonofficial Remedies (*Jour. A. M. A.*, Feb. 17, 1917, p. 564).

Firolyptol Plain and Firolyptol with Kreosote.—The Council on Pharmacy and Chemistry reports that Firolyptol (The Tilden Company) is said to be composed of eucalyptol 10 drops, cottonseed oil $\frac{1}{2}$ ounce and Firwein enough to make 1 ounce, and that, as the composition of Firwein is secret, the composition of Firolyptol is also unknown except to the manufacturers. Firolyptol with Kreosote is said to contain, in addition to whatever may be the component parts of Firolyptol, 10 minims of creosote to each ounce. The advertisements for these two preparations seem to have for their keynote the assertion that cottonseed oil is a particularly valuable nutriment and that when combined with the constituents of Firolyptol and Firolyptol with Kreosote it becomes particularly valuable to the tuberculous. The Council discussed the extravagant claims made for these proprietaries; reminds that food and fresh air, not drugs, constitute the fundamentals of the treatment of tuberculosis; and finds that neither of the products is acceptable for New and Nonofficial Remedies (*Jour. A. M. A.*, Feb. 17, 1917, p. 564).

More Misbranded Nostrums.—The following "patent medicines" were found misbranded under the U. S. Food and Drugs Act chiefly because false and fraudulent therapeutic claims were made for them: Collins' Ague Remedy, admittedly containing $33\frac{1}{3}$ per cent. alcohol.——Swaim's Panacea containing nearly 5 per cent. alcohol, 58.5 per cent. sugar, 0.1 per cent. salicylic acid and some sarsaparilla.——Swayne's Panacea, essentially the same as Swaim's Panacea in composition.——Croxone, capsules containing a white pill and a red oil: the oil was oil of pine or oil of juniper dissolved in a fatty oil, while the pill consisted essentially of strychnine, a trace of brucine, aloin, hexamethylenamin, lithium carbonate, potassium nitrate and probably a trace of atropin.——Freeman's Balsam of Fir Wafers, lozenges consisting of sugar with very small amounts of oil of turpentine and eucalyptus with the possible presence of balsam of fir.——Renne's Pain Killing Oil, essentially a water-alcohol solution of sassafras oil and cayenne pepper containing 78.6 per cent. alcohol and 4 per cent volatile oils and possibly a little mustard oil and soap.——Schuh's Yellow Injection, an aqueous solution of boric acid, carbolic acid and berberin.——Schuh's White Mixture, a mixture of mucilage of tragacanth, balsam of copaiba, and probably sandalwood oil, flavored with cassia.——Elmore's R'eumatine Goutaline, apparently a dilute tincture of colchicum.——Armstrong's Croup Ointment, containing eucalyptus and traces of other oils, possibly cassia and thyme.——Anticephalalgine, containing 30 per cent. alcohol and 4 grains acetanilid to the ounce, sodium bromid, sodium salicylate, caffein and antipyrin.——Wright's Rheumatic Remedy, an emulsion composed principally of turpentine, methyl salicylate, sugar, acacia, and water, with probably some resinous or plant extractive matter.——H. G. C., a watery solution of borax and berberin sulphate.——Russell's White Drops, containing 13 to 16 per cent. of alcohol as well as codein.——Pneumovita, a sweetened gum, containing small amounts of charcoal and iron phosphate having a wintergreen flavor.——Mecca Compound, an ointment containing carbolic acid, camphor, borates, zinc compound, sodium soap in a soft paraffin base.——Best Cough Remedy, a spearmint syrup containing alcohol, chloroform and morphin.——Stella-Vitae, a female weakness remedy.——Vegetable Pulmonary Balsam, a syrup flavored with spearmint, sassafras, containing alcohol and opium (*Jour. A. M. A.*, Feb. 17, 1917, pp. 565 to 566; Feb. 24, 1917, p. 651).

Biniodol.—The Council on Pharmacy and Chemistry reports that Biniodol is claimed by the manufacturer, Charles C. Yarbrough, Memphis, Tenn., to be a solution of 1 per cent. mercuric iodid and 2.75 per cent. guaiacol in a vegetable oil and that it is marketed with the implication that it is new and superior to other oil solutions of mercuric iodid. The Council found that the claims of novelty and of superiority were not substantiated by the evidence. Clinical investigation did not demonstrate the effects of Biniodol to be different from those of solutions prepared in the A. M. A. Chemical Laboratory, with and without guaiacol. The Council declared Biniodol inadmissible to New and Nonofficial Remedies because claims of superior efficiency were not established; and because it is an unessential modification of an established non-proprietary article marketed under a proprietary name (*Jour. A. M. A.*, Feb. 24, 1917, p. 650).

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ORIGINAL ARTICLES

THE DISPOSITION OF THE LIGAMENTS IN HYSTERECTOMY*

STEPHEN E. TRACY, M.D., F.A.C.S.
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In order to eliminate the serre-noeud method of treating the cervical stump after supravaginal hysterectomy, Goeffe, of New York, in 1888, sutured the peritoneal cuffs together over the stump, which had been encircled by a silk ligature, and allowed the cervix to drop back in the pelvis. Since Baer, in 1892, described his operation of supravaginal hysterectomy, whereby the arteries were ligated in the broad ligaments, the cervical stump dropped back in the pelvis and covered with folds of peritoneum; it has, with various modifications in details of technic, been adopted by all operators.

Some few gynecologists have used as a routine procedure, with indefinite technic, the divided uterine ligaments to support the cervical stump and bladder. Others suture the round ligaments to the cervical stump only in cases in which there is relaxation of the pelvic outlet with a tendency to prolapse of the pelvic organs. Many surgeons, on the other hand, are satisfied to cover the cervical stump with peritoneum and suture the raw surfaces of the broad ligaments together and make no attempt to use the uterine ligaments as structures of support. Some operators, in an attempt to cure a prolapse of the cervix, of the bladder, or of both, following hysterectomy, suture the round ligaments to the prolapsed cervical stump, usually as would be expected with a flat failure.

While there is nothing new about using the uterine ligaments to support the cervical stump and bladder, the technic will be described in the hope that it will stimulate delinquents to utilize these structures. Anyone who has been called on to relieve a patient suffering with a complete prolapse of the cervix and bladder subsequent to a supravaginal hysterectomy, or a prolapse of the bladder with a complete eversion of the vagina following a panhysterectomy, is confronted with a difficult problem, and should realize that such a condition could have been avoided if proper use had been made of the uterine ligaments and a thorough plastic operation had been performed prior to, or at the time of the hysterectomy.

In this discussion, it is not necessary to consider the indications for hysterectomy, the preparation of the patient and the various details, as we are dealing only with the technic of the operation.

A catgut suture on a sharp needle is passed through the broad ligament above the round ligament. The suture is then brought up over the top of the broad ligament and again perforates it below the round ligament. When tied, the infundibulo-pelvic and round ligaments are in one pedicle, and the blood supply of the upper and outer portion of the broad ligament is controlled. A clamp is applied at the side of the uterus and the broad ligament cut down below the round ligament. The peritoneum and bladder are pushed down until the uterine artery is exposed. The artery is ligated by passing a sharp needle threaded with catgut through the side of the uterus to fix the ligature. The ligature twice encircles the artery. The same procedure is carried out on the opposite side. The amputation is carried out in the usual way, making an anterior and a posterior lip. Before the division is carried quite to the cervical canal, the anterior lip is caught with a bullet forceps and then the division of the organ completed. The cervical canal is cauterized with phenol followed by alcohol, or by the actual cautery. The lips are approximated with catgut and the suture at either side of the cervix is made to encircle the uterine artery.

The field of operation is then inspected and if thoroughly dry the ligaments are sutured to the cervical stump by passing a needle, threaded with gut, through the infundibulo-pelvic and round ligaments and through the upper part of the cervical stump about the mid line, taking a good bite. The same procedure is carried out on the opposite side. This fixes the cervical stump to both pedicles. The ends are then sutured together, and if the round ligaments are sufficiently long they may be pulled over

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* Read before the Section on Surgery of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 20, 1916.

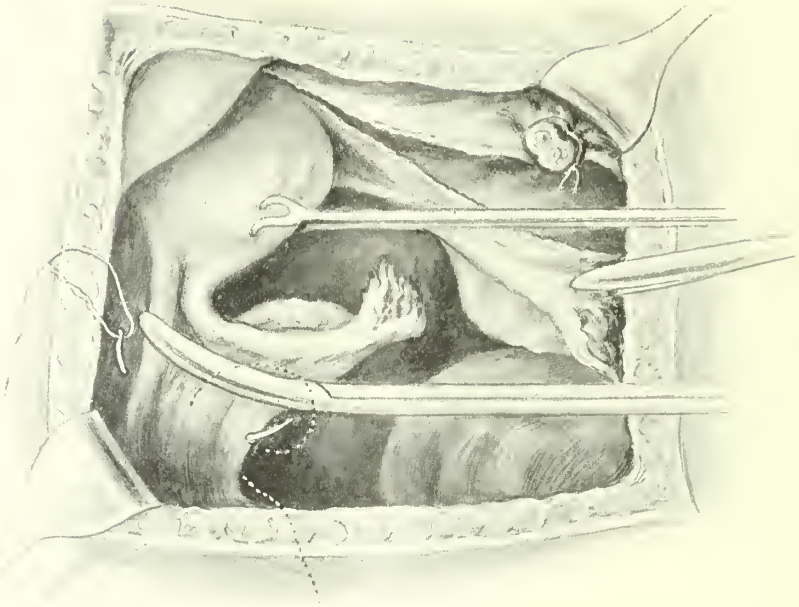

Fig. 1.

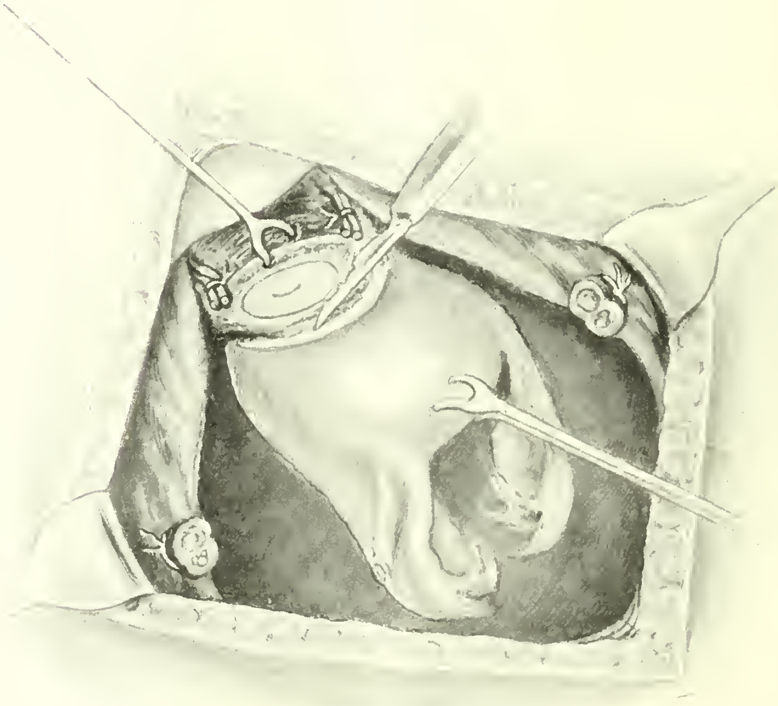

Fig. 2.

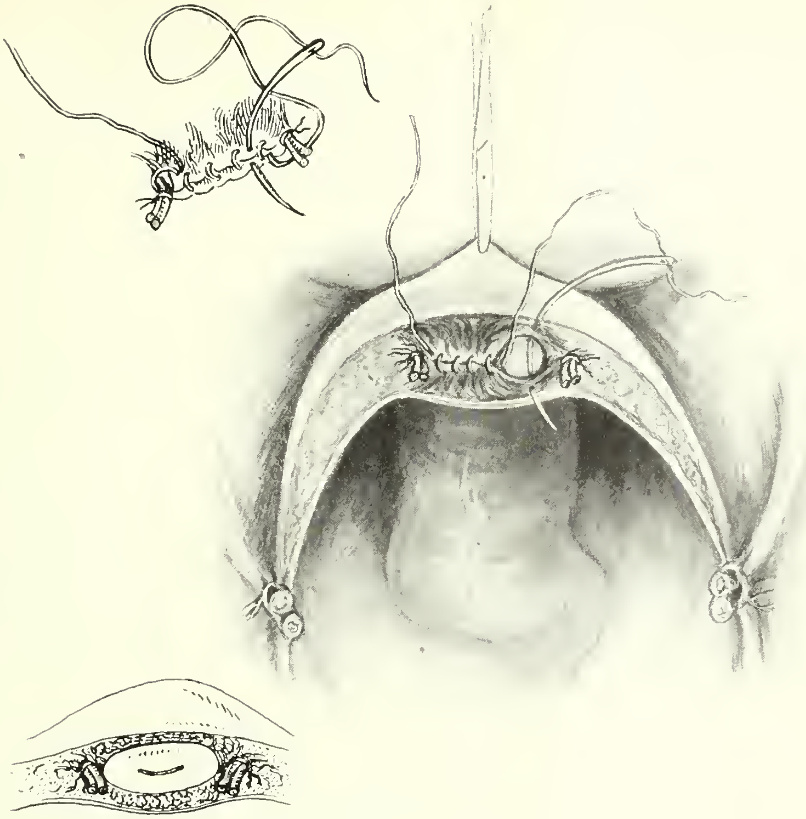

Fig. 3.

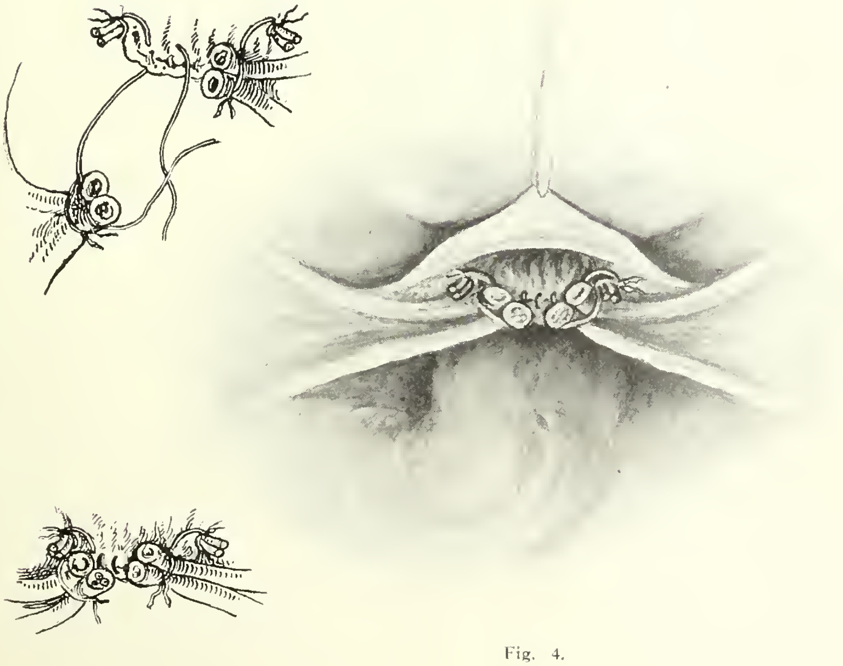

Fig. 4.

and further anchored to the anterior surface of the cervical stump.

A needle threaded with catgut catches the peritoneal reflexion of the bladder at one side, passes through the upper edge of the infundibulo-pelvic ligament and posterior surface of the broad ligament. When tied, the raw surfaces between the cervical stump and the side of the pelvis are covered with peritoneum. Three or four sutures fasten the peritoneum to the posterior surface of the cervix, and when the margin of the stump is reached the pedicle is treated the same as on the opposite side.

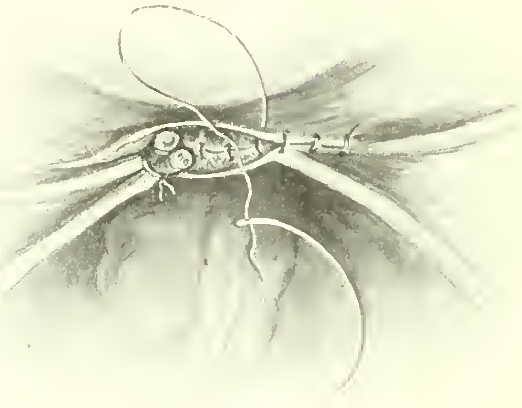

Fig. 5.

By this technic the pedicles and all raw surfaces are entirely covered with peritoneum, and it takes but few sutures to accomplish this result; the cervix and bladder are on a high, if not on a higher plane in the pelvis than before the operation; the culdesac is of normal depth; and if a relaxed or lacerated pelvic outlet has been restored to a normal condition by a proper plastic operation, prior to the hysterectomy, there will be scant chance of a prolapse of the remaining pelvic organs.

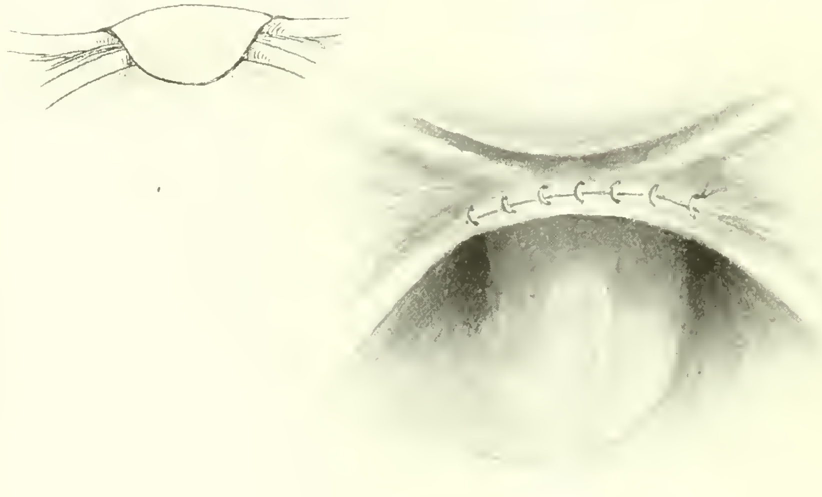

Fig. 6

The same technic can be carried out in certain cases after a complete hysterectomy. It is possible in many nonmalignant cases, after suturing the vaginal walls together, to suture the infundibulo-pelvic and round ligaments together across the pelvis and then suture the vagina to the ligaments. All raw surfaces can be entirely covered by pulling the bladder peritoneum over the top of the ligaments and suturing its edge to the posterior vaginal wall.

In a patient in whom it is desirable to drain the pelvis after a supravaginal hysterectomy, the cervix can be split down through the vaginal wall, or an opening made in the vaginal wall below the cervix through which to pass the gauze. After the gauze has been placed the ligaments are sutured to the sides of the cervical stump. The sigmoid is dropped down in its normal position and will usually cover the greater portion of the gauze. The bladder-reflexion of the peritoneum is sutured to the infundibulo-pelvic ligaments high up. By passing a few sutures between the bladder peritoneum and the appendices epiploicæ or the edge of the sigmoid the gauze is entirely covered, an infected or oozing pelvis is excluded from the peritoneal cavity, no raw surfaces are left and the convalescence should be as free from peritoneal complications as after a celiotomy.

With the exception of the chromic gut used to anchor the cervical stump to the infundibulo-pelvic and round ligaments plain catgut is used. We never leave chromic gut exposed on a peritoneal surface, as the chromic acid causes irritation with an increase in serum, exudate, and the formation of adhesions.

1527 Spruce Street.

DISCUSSION

Dr. Charles G. Strickland, Erie: This question is one of importance in the mind of any man who has a considerable number of these cases. Prolapse of the uterine stump unsupported from above occurs even in nulliparous and unmarried women. Any plan of hysterectomy which does not take the possibility of prolapse of the uterine stump into consideration and provide against such a contingency is an incomplete operation. The technic Dr. Tracy has just described is simple and will, I believe, meet the indication. With slight variations in the technic of hysterectomy I have followed this for some time. One difference is that I prefer to suture the divided uterine ligaments to the cervical stump before and not after the approximation of the cervical flaps, believing that a broader and better line of union is thus obtained. I want to know what Dr. Tracy's reason is for not doing this.

Dr. William L. Estes, South Bethlehem: I can confirm what Dr. Tracy has said about the value of this technic as we have used it in my clinic for the last fifteen or twenty years, in something like 2,000 cases. Support of the stump by the ligaments and the general support of the pelvic floor has been admirable, and has in every case borne out what Dr. Tracy contends for it; namely, the absolute prevention of prolapse. Even when a prolapse has begun, it is indicated. It acts as a capital support; besides, this technic covers up the cut surfaces and notwithstanding the fact that we use chromic catgut we have had no trouble. It is certainly an excellent thing.

Dr. Tracy, closing: In reply to the question of Dr. Strickland, why do we not anchor the cervix to the infundibulo-pelvic and round ligaments, before the lips of the cervix are approximated, I will state that we believe there is less risk of infection and we are satisfied that the results are equally as good. There is one point I thought some one would bring up. Plate IV shows the sutures, which anchor the cervix to the infundibulo-pelvic and round ligaments, are passed through the ligaments to the distal side of the ligatures. The criticism has been made that the cervical stump is sutured to the devitalized end of the ligaments. Theoretically this is a good criticism; from a practical standpoint it is of no value whatever. I have examined a large number of these patients from months to years after operation and the cervical stump remains suspended in the pelvis. The sutures are inserted to the distal side of the ligatures in order to avoid pulling off the ligatures which would result in a free hemorrhage. I have seen a number of cases of prolapse of the cervical stump and eversion of the vagina following supravaginal hysterectomy in cases in which the ligaments had not been used as structures of support; the cervical stump simply being allowed to drop down in the pelvis. One patient in whom this occurred had the abdomen reopened and the cervical stump attached to the round ligaments, with the result that the same condition pertained a few days after she returned home. It was done a second time by the same surgeon with a like result as soon as the patient got out of bed. This patient was cured by a thorough plastic operation. Had the cervical stump been anchored to the infundibulo-pelvic and round ligaments and a proper plastic operation performed at the time of the hysterectomy, the patient would have been spared the discomfort of three additional operations. If the cervix is anchored to the infundibulo-pelvic and round ligaments in the proper way and the pelvic floor is restored to a normal condition, it will be seldom that any of us will be called on to relieve a patient suffering from a prolapse of the cervix with a complete eversion of the vagina following hysterectomy

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THE CONSERVATIVE TREATMENT OF PUERPERAL SEPSIS *

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After forty years' experience with puerperal sepsis, during which time I have seen the causes of the condition recognized and formulated, I appreciate the invitation from your committee to discuss its conservative management.

In the spring of 1875, after an arduous service in the surgical wards of the Philadelphia Hospital, in which I was treating a case of surgical erysipelas as it was then called, I passed without any especial sanitary preparation to service in the obstetrical department, and, as would now be expected, my entrance on this service was followed by what was then called an epidemic of puerperal fever. Some fifteen cases developed during the next six weeks. During this first month one of the unhappiest days of my professional experience

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* Read before the Section on Surgery of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 21, 1916.

was occasioned by the death of two women leaving three children motherless. Obstetrics, like surgery, was practiced without any special preparation of patient, attendant or the room in which the delivery was to take place, so that it was not surprising that case after case became infected. It is now recognized that puerperal sepsis following an interruption of pregnancy, whether in course or at its normal termination, differs only from ordinary surgical sepsis in its location and in the larger avenues opened for its introduction. No one will now dispute the assertion that the most effective treatment, and consequently one worthy of first consideration in the conservative management of the puerperal woman is prophylaxis. This subject is now so elementary and the merest tyro is so well grounded in the measures to be employed that its discussion would seem a work of supererogation.

When I began practice the hospital treatment of puerperal cases was attended with a larger mortality than occurred in private practice, and admission of patients to hospitals, where it could be avoided, was deprecated; now it is recognized by both the laity and the profession that during delivery the woman in a well-managed hospital has additional assurance against possible infection. This is secured through more accurate preparation of patient, environment and attendants. The occurrence of infection in such a case is considered a discredit to the institution in which it occurs, and one demanding an explanation. This revolution in experience is but an additional demonstration of the value of the application of the measures of surgical cleanliness to the field of obstetrics. Abdominal delivery today in clean cases is attended with a slighter mortality than was delivery in course when I entered on the practice of the profession.

I do not, however, wish to lose sight of the fact the phase of this subject assigned me is its conservative treatment. The term conservative I will discuss from two standpoints; first, as opposed to radical measures; and second, that, wherever possible, preservation of function as well as life should be considered the laudable and ultimate goal.

The comparative ease and lessened mortality of surgical measures under modern measures of asepsis naturally led to the frequent resort to surgery where infective processes threatened the future of the patient. In localization of the infection where demonstrable, and in cases where it was taken for granted that the disease must be localized in the uterus because it was through this organ that the invasion occurred, resort has been had to operative procedures of greater or less gravity. A proper knowledge of the progress of the infection, and a careful study of the means nature employs to combat the entrance of the poison and to establish barriers against its invasion should preclude early operative interference of any kind. Masterly inactivity from the surgical standpoint should be the course of the attendant, and yet, even with our present knowledge, how infrequently do we practice these precepts; indeed, how difficult do we find their practice. A rise in temperature a few days following delivery is regarded by both physician and friends of the patient as evidence that clots of blood or some of the embryonic products have been retained. This obsession also influences the action of the consultant and measures are instituted to remove the supposed offending materials. Even should portions of the placenta, membranes or clots be retained within the uterus they are productive of less danger to the patient than is the employment of forcible measures for their removal. The invasion of micro-organisms at once determines the development of measures for arresting the progress or ensuring its limitation. These barriers, the slighter measures, such as curettement, injure and break down without accomplishing the removal of the infecting organisms, and consequently but serve to open up new fields for invasion.

Invasion of the structures of the body by the organisms and their multiplication therein institutes such measures of resistance as to render the tissues unsuitable to further development so that the continuation of their vital processes becomes self-limited. If we can sustain the patient until this period has been reached, or by proper measures so increase her resistance that its occurrence shall be advanced, we are exercising precision in treatment. Subsequent to this devitalization, or death of the organisms, we can resort to surgery for the removal of the consequences of the inflammatory processes with the assurance that the danger of reinfection is nil, while earlier interference is associated with almost absolute certainty of its spread. The majority of physicians under such circumstances are inclined to regard the condition akin to a house in conflagration and conclude that active measures must be instituted to put out the fire. Naturally they start in at the point of supposed entrance to institute measures which metaphorically enable them to get ahead of the flame and do various things with a view to arresting its course or removing the material by which it is promoted and advanced. The average mind seizes on the curet to be followed by chemical irrigation and packing as the measures of primary resort; the bolder surgeon, believing, and rightly, that the organisms are very early in the invasion beyond the reach of the curet resorts to a more radical procedure, the removal of the uterus. Should he be successful in saving the life of the woman, has he any assurance that life might not have been spared without the necessity of such mutilation and the sacrifice of the important function of procreation? Quite frequently it will be found that this advance has not been effective for the reason that the infection has already become systemic, and the operation by its extra demands on the powers of the patient has but hastened the fatal termination.

If we are not to resort to operation what shall we do? Experience has demonstrated that the best results are achieved through the utilization of rest, promotion of elimination, and the establishment of early immunity. Every sufferer from an acute infection realizes how much more comfortable she is when absolutely at rest. Exertion increases the activity of the circulation and causes pulsation and pain in the seat of the disorder. Not only is there this physical manifestation but it also serves to spread the infection, so rest, physical and mental, is an important consideration. This means isolation from indiscreet and tactless friends and relatives, the employment of remedies which will restrain the force of the circulation, and those which will ensure sleep. Elimination is promoted by employment of mild purgation, the use of continuous instillation of salt solution by the rectum, and the imbibition of large quantities of water. The cleansing of the alimentary canal fits it better for the absorption of fluids which stimulate elimination through the kidneys and skin. The toxin products are thus removed and the processes of combustion and oxidation favored. The establishment of early immunity is of the utmost importance. That the vital forces of the patient are being put forth are evident by the elevation of temperature and the degree of leukocytosis. Where these are manifest it may be wise to watch and wait, giving assistance as the condition may demand. Where it is evident that the forces of the patient are ample to make a winning fight it is better that they should not be disturbed by unwise and injudicious measures to afford aid. Sometimes these are like the increase of draft when the fire is slumbering, they but serve to destroy the combustion. The constant purpose of the physician should be to aid, and when in doubt as to whether aid is needed it is wiser to do nothing. In order to wage a successful battle it is important that the nutrition of the patient should be maintained. The alimentary canal should consequently be as little disturbed as possible by the administration of drugs, reserving the stomach for digestion and nutrition. Medication, when deemed necessary unless purgation, should be employed by the rectum or hypodermically. Local treatment can be employed to limit inflammatory processes by the use of cold to the abdomen in the acute stages, and hot applications after the temperature becomes normal to promote absorption of exudation. The vagina and vulva should be kept clean and be protected by aseptic dressings.

The essential purpose of treatment is the promotion of early immunity and this may be accomplished by the utilization of serums and vaccines. The latter are probably the most effective. The vaccines may be autogenous or exogenous. The former are the most scientific for, having been prepared from the organisms developing in the individual, they are more likely to increase the antibodies against the particular organisms causing the condition; while the exogenous is shooting in the dark against the invading organisms. The employment of the autogenous has the disadvantage that (1) it requires especial skill to ensure its manufacture and to free the vaccine from vital and harmful organisms. (2) Examination of the blood of the affected patient is often negative and consequently it is difficult to secure the culture. This is not because a bacteremia does not exist, but that the organisms adhere to the sides of the vessels and are not found in the general current. (3) In severe cases the time required for the manufacture of the vaccine is valuable time lost and for this reason stock vaccines are often employed. Where conditions are favorable a culture from the blood of the patient should be made and when positive a vaccine should be prepared. An amount of the vaccine containing ten to twenty millions of the dead organisms should be injected, and unless the reaction is very marked should be repeated the following day. Thereafter the vaccines may be used on alternate days or twice a week according to the reaction and the progress of the patient. The employment of the serums, if not too old, or even of horse serum has a gratifying effect in promoting the resistance and establishing immunity. It should be given in large doses, 10-20 c.c., and repeated twice daily in severe cases.

While condemning the indiscriminate resort to surgery in the treatment of puerperal sepsis, I would not wish to be understood that surgical measures have no place in the treatment of the disease. Collections of blood within, or external to the peritoneum, become infected and unless evacuated become a nidus for the spread of further infection. Evacuation of such collection is often of the greatest value. In suppurative peritonitis, incisions for drainage through the vagina and if necessary in the sides of the pelvis will, in association with the Murphy drip, serve to relieve the patient of what would otherwise prove a fatal condition. Localized collections in the tubes, ovaries and uterus may be more than nature can carry and should be removed when they endanger the life or health of the patient.

When the condition of the destruction of tissue endangers the life of the patient even though the uterus, ovaries and tubes be so involved as to necessitate their sacrifice in order to establish relief, radical measures become conservative. Sacrifice should never be made unnecessarily nor on the other hand should the attendant hesitate to remove structures whose function is destroyed and whose retention endangers the life and future health of the individual.

1426 Spruce Street.

DISCUSSION

Dr. George Erety Shoemaker, Philadelphia: I think that the society owes Dr. Montgomery a vote of thanks for the presentation, in this manner, of this very important subject. Conservative treatment must not be understood as opposed to radical measures, if the latter are necessary, but I for one would like to join with those who believe that radical measures as usually understood are seldom required in the management of puerperal sepsis. However, my hospital experience is peculiar in certain respects. The puerperal infections which come to us are not those in patients whom we have ourselves delivered. We are, therefore, without a reliable history as to the absence of retained pieces of placenta or membrane. There are cases which come as the result of criminal interference and there again we have no history. There are other cases which have been hastily examined, recognized and unloaded on the hospital. Such cases influence our attitude as to noninterference. We make a very careful, gentle effort to be sure that there is nothing within the vagina or within the uterus as a preliminary, and I am sometimes surprised to find what is there. Strips of old muslin, pieces of cotton, strips of bandage, highly offensive decomposing masses of placenta. The patient is brought in with temperature of 105 F. Gentle removal of a piece of necrotic material without the use of any instrument which can break down the wall of defense which Nature has already erected, then gentle flushing with salt solution or a weak iodin solution and the application, in the abortion cases, of tincture of iodin to the uterine cavity, will result most frequently in immediate improvement and the subsidence of all symptoms, except where the blood has been invaded by organisms, or a septic focus has formed in other tisues outside the uterus. Our mortality in the Presbyterian Hospital in Philadelphia, where we have a great many of the secondary infections to treat, is exceedingly low. One must never forget that these cases tend to get well of themselves.

In regard to an active interference by a cutting operation, I hesitate to do it above the pubis during the active stage unless absolutely obliged to do so. Abscesses which form outside the uterus are drained temporarily by the vagina, and in the course of six weeks or more I do whatever radical surgery is necessary. It is surprising how little is then required. In regard to the use of vaccines and bacterins, a man is almost afraid to be considered a back number if he is not using something which is advertised by the manufacturing houses. Puerperal sepsis presents peculiar difficulties in determining which organism is producing the poison. In the vagina there are at all times most if not all of the common organisms. In a given puerperal patient with fever, the fact that it is possible to isolate a streptococcus from a vaginal or cervical smear, is no proof that it is a streptococcus which is doing the damage; or which one of many strains of streptococcus is at fault, if any. Much experimental study has been made on this point and various apparatus has been devised for obtaining uncontaminated specimens of discharge from the uterine cavity without uniform results. Only in case of a bacteremia are we on definite ground. There a vaccine or bacterin may be used, occasionally with advantage. But unfortunately most of these patients, even though very ill, give a negative blood culture. I have asked in critical cases leaders of the profession, "If that were your wife would you use a vaccine or a bacterin in the present state of our knowledge?" and they have said "No."

Dr. Kate W. Baldwin, Philadelphia: I am very much inclined to ask myself the plain question which Dr. Shoemaker asked. In most cases if it were my daughter or sister, I would not give the vaccines. Others of you may have had experience in the use of echinacea angustofolia, one of our American products free from any danger, and which in sepsis takes the place of serum or vaccines in practically every case. We get results which we do not get with serum or vaccine. We have had cases in the hospital which seemingly were beyond recovery. The interns said: "Why, Doctor, there is no use of your trying; that patient is dead now." My own feeling is that the use of serum advertised by commercial houses is to a very great extent the result of good advertising. I feel that more persons will get well with the proper use of echinacea than will get well without echinacea and with bacterins.

Dr. G. Franklin Bell, Williamsport: About six weeks ago two patients were admitted into the Williamsport Hospital. The surgeon drew one patient's wound together with ordinary adhesive plaster, and as a result he had a badly infected wound. The other, a woman admitted to the wards about the same time, had practically the same kind of infection. The woman was delivered and had a very badly torn cervix. She had a very purulent and actively infective condition with exudates and decidedly edematous condition of the cervix in general. I cannot make myself believe that there should be any difference whatever in attempting to destroy this infective process, whether it be on the leg or on the cervix, by the same destructive agent that will destroy bacteria. I cannot reconcile myself in either of these cases, and believe that I was conservative by giving any constitutional agent in so far as the patient's vitality was concerned. It was my duty to destroy the infection. I cleansed the part with irrigation by salt water; I applied a pack of bichlorid of mercury; and both patients recovered. I cannot prove that the bichlorid did it, but I do know they both got well.

Dr. C. E. Thomson, Scranton: I think it is possible that we might make a mistake in going too far away from the use of autogenous vaccines. They have at least in their favor a sound scientific standing, and, as a rule I think, when we get away from the scientific side of medicine we are drifting in the wrong direction. There is not any doubt today that the basic principle of autogenous vaccines is sound and I should regret if this section went on record as being opposed to it.

Dr. C. F. Nassau, Philadelphia: I can hardly enter a discussion on puerperal sepsis because it is thirteen years since I delivered a woman. However, one thing has been said that might create a very bad impression. Somebody said: If this particular patient were a relative of yours would you then use this means of cure or not? Now, what difference is it going to make whether it is a relative? What right have we to use a drug on a hospital patient and decline to use it when it comes to relatives? It is very wrong and it is a very wrong impression to give others. I believe with the speaker that in the use of vaccines we have a medium for very great good in many general surgical infections. There is no doubt but what, in this case or that, it frequently makes the difference between a recovery or a death. With all due respect to Dr. Baldwin, how does she know that this medicine which she gives empirically has the slightest effect in making her patient well? There is no basis for it. There is a basis for the autogenous vaccine. In regard to the patients quoted from Williamsport, they had splendid resistance. In all the hospitals where I work it is a question of drainage, supporting the patients and letting them get well. If their resistance can be increased in any way that may possibly turn the scale, such means should without doubt be employed, whether it be by the use of vaccines or otherwise.

Dr. Shoemaker: In general surgery and in the infections which are relatively on the surface where we can obtain good material for autogenous vaccines, they are among the most valuable things we have in our armamentarium. But in puerperal sepsis the technical difficulty in getting the proper vaccine has proved insuperable. There is no way of getting the guilty organisms; whether you use a suction syringe from the uterine cavity or vaginal smears you cannot tell which one of the organisms is at fault. Therefore, in this particular instance you are working in the dark; unless the blood shows a growth.

Dr. Montgomery, closing: I suggested that the vaccines be prepared from the blood. Consequently any organism that enters the blood might be considered as an invader and responsible for this condition. As to the employment of a vaccine or serum, whether I should employ it for my own family, I want to say that I would not use for any patient what I would not use in my own family. I think that every man should be conscientious enough to do what is for the best interest of the individual regardless of relationship. As to the employment of this agent Dr. Baldwin advocates she, unfortunately, leaves us in the dark as to how it is to be used, whether locally, internally or intravenously. It may be questioned whether recovery ensues as a result of the agent or in spite of it. Also, in regard to the suggestion Dr. Bell has made that there is a great temptation to treat the conditions locally, to endeavor to destroy the disease where it is apparent. I have no objection to the local application where it can be seen, such as he describes, but how are we going to use it in the uterine cavity or above it? If he uses measures for the destruction of the disease he is simply breaking down barriers nature has prescribed for the protection of the patient and endangering the patient in so doing. In regard to cleansing out the uterus where abortion has taken place, I have read a paper in the last year giving an account of nearly 300 cases of abortion which have come into Jefferson Hospital. I am sorry to say we make a specialty of abortion cases there. Cases we left to nature, no matter how virulent the condition was when the patient entered, recovered with a smaller percentage of mortality than those in which we interfered and tried to remove the diseased condition. I do not object if the physician finds the placenta in the vagina to pick it out; that is all right, but to dilate the uterus for the purpose of emptying the uterus of possible contents is doing harm. The patient's chance for recovery are better if he leaves her alone and allows nature to take care of the condition.

RADIOTHERAPY IN GYNECOLOGY *

F. E. KEENE, M.D.
PHILADELPHIA

This report comprises an analysis of 116 cases treated in the Gynecological Department of the University Hospital. Of this number sixty-nine were malignant growths of the cervix, vagina and urethra, and forty-seven were cases of benign hemorrhage of myomatous or myopathic origin.[1]

MALIGNANT CASES

We have been unable to obtain the present condition of ten patients, leaving fifty-nine for our analysis. Treatment was undertaken in all cases irrespective of the extent of the disease and, with but one exception, all had passed the operable stage. I wish to emphasize the fact that radium was applied to these inoperable cases, not with the idea of cure but to relieve excessive hemorrhage and discharge. In the majority, the diagnosis was confirmed by microscopic examination; the remainder presented such characteristic gross appearances as to offer no question of doubt concerning the nature of the lesion.

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* Read before the Section on Surgery of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 20, 1916.

[1] I am indebted to Drs. John G. Clark, Brooke M. Anspach and C. C. Norris for the privilege of including their cases in making this report.

Profuse, irregular hemorrhage was the chief symptom in forty-five cases. In forty-two, the application of radium was followed by complete cessation of bleeding. Of this number, thirty-four have had no return and in eight reappearance of bleeding is noted in from three weeks to eight months after the treatment. In but three cases was hemorrhage uninfluenced. Foul, irritating discharge was an additional complaint in thirty-five patients. Twenty-two of these were entirely relieved within a few weeks, while in thirteen there was either a decided decrease or no effect whatever.

The statement has been made that radium not infrequently relieves pain, but this has not been confirmed by our experience. Nineteen patients suffered pain of varying severity and in but two of these was this completely relieved. In the remaining seventeen, the pain continued as before the application, or increased as the malignant process extended.

Fives cases of rectovaginal or vesicovaginal fistulæ developed subsequently. In four, months elapsed between the treatment and the development of the fistulæ, therefore it seems likely that these are to be ascribed to an extensive sloughing of the growth and not to the direct action of radium. In the fifth case of fistula, radium was applied in the vaginal cuff immediately after a total hysterectomy, and here fistulæ involving both bladder and rectum appeared in four weeks, due doubtless to the effect of radium on tissues whose resistance was lessened by the trauma incident to operation.

Technic of Application.—The majority of cases received from 85 to 110 milligrams for twenty-four hours; 210 milligrams were applied in one case of a large cauliflower growth in a woman of 28 who was six months pregnant. The radium was encased in a platinum capsule and rubber dam covering. When ulceration was present, the curet was used only to obtain sufficient tissue for microscopic examination. In the cauliflower type, the friable mass was removed with the fingers or lightly curetted and cauterized or packed to control hemorrhage, and radium was then applied, thus promoting deeper penetration. As a rule, these patients remained in the hospital one to three days after the application. The patients were advised to return in five weeks for examination and a second treatment.

Results.—The only immediate constitutional effects which followed the application of radium were nausea and vomiting, which usually ceased in from twenty-four to thirty-six hours after the radium was removed. Rarely, there was an elevation of temperature which reached 100 to 103 F., but this was of short duration. In a few instances the patients complained of vesical and rectal irritability. The local effects of radium are very striking and are to be seen in every favorable case within a few weeks after the application. The ulceration rapidly becomes healthy in appearance and diminishes in size or entirely disappears, leaving a dense, white, smooth scar surrounded by an intensely red vaginal mucosa. Later, as the scar tissue contracts, there is narrowing of the vagina and light adhesions may unite the anterior and posterior vaginal walls. During the process of healing, a profuse, purulent discharge is not infrequently noted, but this disappears in the course of a few weeks.

Remote Results.—In twenty-six, or 44 per cent. of our cases, there has been complete healing of the carcinomatous ulceration in the cervix or vagina, leaving merely a white scar at the site of the growth. Two of these show no evidence of carcinoma twenty-two months after the first application of radium. Two cases of chorio-epithelioma of the vagina are well with no local evidence of disease after sixteen and twenty-one months, respectively. In the case of carcinoma complicating pregnancy, a portion of the mass was removed with the cautery and radium applied immediately. Six weeks later the patient gave birth to a normal child with no complications, and at the present time, four months after the first treatment, she enjoys perfect health with no evidence of carcinoma remaining. The time in the other cases varies from two to twenty-one months and in several of these, while there is local healing, the deeper extension of the process continues, showing that radium has little if any effect beyond certain limits. The ulceration in six cases has been greatly lessened, while in twelve there is no local effect apparent or the spread of the disease has been hastened by the treatment. We have been unable to ascertain the local results in eleven cases. Thirteen patients have died at intervals varying from one to eleven months after the radium was applied.

BENIGN CASES

This series of forty-seven cases comprises patients who have been treated for uterine hemorrhage of myomatous or myopathic origin. In no case was the tumor of large size and, in each, the only symptom was excessive bleeding

Technic of Application.—In every case a preliminary curettage was performed and the curettings examined to eliminate carcinoma of the fundus. The radium, protected by platinum and rubber, was inserted to the fundus of the uterus, where it remained for from eight to thirty hours. In by far the larger number of cases the time of application was twenty-four hours, and the amount of radium 50 milligrams. The patients were discharged from the hospital in from three to five days after operation.

Results.—As in the cancer cases, nausea and vomiting not infrequently followed, lasting one or two days. Occasionally there was slight elevation of temperature, and in one instance 103 F. was reached. As a rule, the convalescence was marked by no disagreeable symptoms.

We have obtained the results in all but two cases, and in not a single instance has there been a failure to check the bleeding. Four patients were between 20 and 30 years of age, in whom the application was made for only eight hours; in these, the profuse menorrhagia has been reduced to the normal flow. In the remaining forty-one, the periods have entirely ceased for intervals varying from two to nineteen months. Amenorrhea may immediately follow the application of radium, there may be one or at most two scanty periods, or slight, irregular bleeding may occur for a few weeks before the permanent amenorrhea is established. In three cases a scanty flow was seen after several months but this was again followed by amenorrhea.

We have been interested in the action of radium as regards its effects on leukorrhea. Our results show that, in the majority of cases, no discharge follows its application. Rarely, a profuse discharge may be present for a few weeks, but is not permanent. Ten of our patients gave the history of profuse leukorrhea and this has been entirely relieved by the radium. In this we have been agreebly surprised, since it seemed logical to assume that the changes produced in the endometrium and uterine blood vessels might lead to a permanent and troublesome discharge.

Abdominal or pelvic pain has followed in three cases, coming on immediately after the application and lasting for ten days. It is of interest to note that mild symptoms of the menopause have been developed in ten cases.

The only ill result occurred in a case of chronic pelvic inflammatory diseases in which the patient's chief complaint was excessive and irregular menstruation. Here there was evidently a lighting up of the old process, since two days after the application the symptoms of acute pelvic peritonitis developed and at operation a few weeks later the findings were those of an old infection with a superadded acute process.

Conclusions.—Based on the foregoing analysis as well as a review of our operative statistics in both malignant and benign conditions of the uterus, we have formulated the following conclusions which govern us in our work.

Because of the large percentage of permanent cures in even fairly advanced cases of carcinoma of the fundus, operation is the treatment of choice and radium should not be used. In carcinoma of the cervix, there is not sufficient data at hand to determine the permanent cures produced by radium after the five-year interval. Therefore, in all cases of early cervical cancer, radical operation is to be advised. In the more advanced stages, which are questionably operable, the application of radium is the procedure of choice. In such cases, if radium has produced an apparent curė, operation at a later date with the idea of further eradication of the disease is inadvisable. The application of radium in the vaginal cuff immediately after radical operation may be followed by disastrous sequelæ.

For the control of hemorrhage and foul discharge in cases beyond the operable stage, radium is by far the best means at our disposal and under such circumstances it should be looked on as a palliative and not a curative measure. Even these cases may exhibit what is apparently a complete cure but as yet sufficient time has not elapsed to warrant any definite conclusions. In a certain percentage of cases radium will have no effect on the growth or may actually stimulate it to more rapid extension. The majority, however, show a rapid destruction of the cancer area with local healing of the ulceration in over 40 per cent. In many of these cases of local eradication of the superficial growth, the deeper extensions or metastases are little if at all affected; hemorrhage and discharge will be controlled but the advance of the disease will be unchecked.

Benign Hemorrhage.—Radium is the treatment of choice in all cases of small, uncomplicated myomata, whose only symptom is hemorrhage. In these as well as in cases of myopathic hemorrhage, 100 per cent. cure can be expected. Sufficient dosage will produce complete and permanent amenorrhea. In young women, radium should be used with the greatest caution, since its application may be followed by a premature menopause. If other measures have failed, radium may be employed, but in small dosage. Irregular bleeding due to pelvic inflammatory disease, tumors of large size or tumors of any size complicated by disease of the adnexa or surrounding structures, as well as myomata in young women, are to be treated by appropriate operation and not by the application of radium. In no case of uterine bleeding should radium be used without a preliminary curettage and microscopic examination of the curettings by a competent pathologist. In properly selected cases the immediate convalescence is smooth and restoration to health is complete. Pelvic pain rarely occurs and as a rule is of but a few days' duration. In the exceptional case profuse leukorrhea follows the application of radium, but this is not permanent. Not infrequently radium has cured or diminished discharge which was present before its application.

In this brief summary I have attempted to give a fair and unbiased statement of the benefits, limitations and dangers of radiotherapy in gynecology. Our conclusions of today may be completely changed by our experience of tomorrow for the entire field of work is still in the period of probation.

DISCUSSION

Dr. Henry K. Pancoast, Philadelphia: I occupy the rather peculiar position of one who praises the work of another man who takes work away from him. Most of the cases Dr. Keene has cited are such as have been or may be benefited by Roentgen rays. I have closely followed the work done by Drs. Keene, Clark and Anspach at the University Hospital, having been engaged in the general use of radium in that institution, with the exception of the gynecological work, which has been entirely under the care of the gynecological service. I have kept in touch with their work and can endorse all that Dr. Keene has said. The gynecologist has the advantage over the roentgenologist in that he is able to use this agent himself; whereas the roentgenologist is usually not a gynecologist. There are undoubtedly some advantages in radium over Roentgen rays in this one feature.

I will discuss particularly the treatment of carcinoma of the cervix. It would be well to state for the benefit of those who ever refer patients for radium treatment that there are certain carcinoma cases in which nothing can be expected by radium or Roentgen therapy, or any other method that is now known or may be discovered in the future. They are cases in which the removal of the growth itself would endanger life or cause death by exposing important organs or structures. Such a case was referred to me a few days ago, and the patient was in turn sent to Dr. Keene for his opinion. Roentgen or radium therapy could have accomplished nothing because it would have meant opening up the bladder and the rectum, and the patient would have been in worse condition than if left alone. The results of radium therapy in carcinoma of the cervix cannot be classified as cures as yet, because the longest cases have still almost three years to run before they come within the five-year period. There must be certain cases in which it is just possible for a recurrence to take place along the borderline, because the application of radium is not quite sufficient to control the disease. We must remember that the penetration of radium rays with destructive effects is limited. There is a certain point at which destruction ceases and, in fact, growth may be stimulated. Roentgenologists contend that these are cases in which a combination of treatment might do good by the Roentgen rays supplanting the radium rays where the destructive effect of the latter weakens at the outer border of the growth in the broad ligament or wherever it may be.

Dr. George C. Johnston, Pittsburgh: I was very much interested in the excellent work of Dr. Keene and there cannot be too much work done along this line. The disadvantage of this treatment is that it requires the physician to have radium worth anywhere from $10,000 to $25,000. Also this work requires considerable experience and a careful technic, and the results which these gentlemen have so beautifully described may not be expected to follow the application of radium without regard to technic.

THE ATTITUDE OF THE DEPARTMENT OF LABOR AND INDUSTRY TOWARD THE PROBLEM OF OCCUPATIONAL DISEASES *

JOHN PRICE JACKSON
Commissioner of Labor and Industry of Pennsylvania
HARRISBURG

On January 1 of this year a great system of accident compensation for injured workers was inaugurated in Pennsylvania through the medium of the Pennsylvania State Department of Labor and Industry. Governor Brumbaugh and his advisers, before the meeting of the legislature which passed these laws, had made a careful study of similar laws throughout this country and Europe, and had drawn up recommendations for the legislature which included the best features to be found elsewhere. The laws were finally passed and signed and have now been effective for over eight months. During this time between fifty and sixty thou-

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* Read before the Section on Medicine of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 20, 1916.

sand injured workers have received compensation. There have been only about 2 per centum of these cases appealed to the referees scattered through the state; and of this 2 per centum but a small fraction has been appealed to the central board, while approximately the number that you could count on your digits have been appealed to the courts. In other words the employers and employees have almost universally gotten together and determined in a friendly manner their relative rights under the law and have made agreements without dispute or difficulties.

I bring this to your attention to indicate that this great law, covering nearly two million workers in the state and some two hundred thousand employers, has not been paternal in its operation, but has formed a medium whereby individual citizens might equitably and in a friendly manner arrange just relations between themselves. The Bureau of Compensation, a part of the Department of Labor and Industry, has, of course, checked these dealings between individuals or corporations and has acted as a safe depository and file of the reports of accidents, agreements and such other papers as have been required for performing the work. The board, which is in the position of chief of this bureau, has diligently prepared rules and methods of procedure for the system, and rendered opinion in cases of disagreement. The department has taken pains to have its whole inspection force aid in the establishment of the law, particularly for the purpose of preventing unnecessary delays in making payment so that the injured man or his dependents might obtain compensation promptly and at the time when, presumably, it was most needed. This activity of the government, however, has been in the nature of cooperative aid rather than of arbitrary rule.

Though the compensation laws have been administered and have worked in such a satisfactory manner, there are, of course, numerous minor modifications which will be made at the coming and succeeding sessions of the legislature, for the purpose of more fully perfecting the machinery. One of the problems to be solved is the determination, with greater accuracy, of the division of payment between hospitals and physicians. Another problem which has been brought to the attention of the department quite frequently has been whether, as a matter of justice, vocational or occupational diseases should or should not be included within the scope of the law.

This latter problem is one that must be considered with much care. It is easy to argue that if civilization has considered it right to make the products of industry bear the cost of human accidents, as they have always borne the cost of the breakage of machinery, therefore it is also right that the products of industry should bear the cost of loss of life or competency through strictly occupational diseases such as lead or arsenic poisoning. It is probable that every member of your association will accept the justice of this argument and consider that if compensation is to be paid in the case of a man who had been ruptured, just so medical attention and compensation should be given to the men who had been poisoned by lead while at work.

The serious difficulty to be encountered, however, is to determine just what constitute occupational diseases. Dr. Francis D. Patterson, the chief of the Division of Hygiene and Engineering of the Department of Labor and Industry and a keen student of occupational diseases, is inclined to accept the definition of Dr. W. Gilman Thompson as given in his book on occupational diseases, namely, "Occupational diseases may be defined as maladies due to specific poisons, mechanical irritants, physical and mental strain, or faulty environment, resulting from specific conditions of labor." Dr. Patterson informs me that so far as he is able to determine, with the exception of caisson disease. it is very difficult to determine definitely whether or not the disease which a man may have contracted was caused by his vocation or otherwise.

England, ten years ago, when she passed her Compensation Act, made anthrax, lead poisoning, mercury poisoning, phosphorus poisoning, arsenic poisoning, the hookworm disease, and resultant sickness compensable. The law also provided that the home secretary might add additional occupational diseases as the system developed. The result was that some eighteen additional kinds of sickness through vocation have since been added.

The Pennsylvania Department of Labor and Industry is inclined to accept as just the stand of those who believe that strictly vocational diseases should be treated under the compensation law in the same manner as are "industrial accidents." The staff of the department, however, considers that very great care should be exercised in preparing legislation to so extend the sphere of the compensation acts of the state. One of the first provisions to be made should be to have reports made on occupational diseases to the Bureau of Statistics of the department. This is in order that the corps of skilled physicians and technical men of the Division of Hygiene and Engineering may have available the data from which to determine more definitely the effect of the work of any industry on the worker and of the materials with which he works or must be surrounded. These reports should undoubtedly be made by the physician attending the person who has been sick, and a suitable sum should be paid to such physicians for making the report to compensate them properly for their time and expense. Already there has been established in Pennsylvania, to obtain information on this subject of vocational and occupational disease, a clinic at the University of Pennsylvania under the direction of Dr. Alfred Stengel of Philadelphia. Such clinics might well be established at other points of intense industry. With reports such as have been suggested, and intelligent operation of a number of such clinics, information would rapidly develop which would enable the application of compensation for vocational diseases to be made effectively and justly.

In the meantime, should Pennsylvania decide to include the principle of compensation for industrial diseases under the system now established for accidents, the law should undoubtedly follow the method used in England, namely, the inclusion of only such diseases as can, from our present information, be handled with ready accuracy, and the provision of suitable machinery whereby, without awaiting special legislation, additional diseases could be added as the information received from the reports and the clinics made such additions wise and proper. At the present time the Industrial Board, created within the department, has the authority of a somewhat similar character to that required here, for safeguarding the safety and health of workers.

Touching somewhat the subject of my paper is that of general compulsory health insurance, which is now being advocated so strongly from many quarters, particularly by the American Association for Labor Legislation. This kind of insurance is in force in Norway, Roumania. Russia, Serbia, Great Britain, and the Netherlands, Germany, Austria, Luxemburg, Hungary and, to a modified extent, in France and Switzerland. These laws invariably include essentially all average or low-paid wage workers.

They provide for insurance funds to be raised by employer and employee, which are handled by mutual management of the two. The employee usually pays the larger bulk of the insurance. In some cases these funds are contributed to by the government, as well as by the employer and employee. The benefits give medical assistance and cash compensation payment, and, in addition, usually provide medicine, medical appliances, etc., and give maternity benefits. The insurance carriers are enabled to make contracts with physicians; they also must arrange for funds for decent burials. In these countries apparently the physicians gladly accept appointments as representatives of insurance carriers, and find their business, on the average, more satisfactory than was the case previous to the adoption of the compulsory health insurance system.

The question as to whether we should adopt compulsory health insurance in this country, thus following the lead of the great bulk of the civilized world, is one which must be decided after a careful balancing of the arguments. We have the serious problem of maintaining individual freedom, initiative, and self-reliance balanced against the advantages of community action, which takes charge of the movements and activities of the individual, and which may have a tendency to weaken these most essential characteristics of our people. The head of the German social insurance department told me that he believed the United States might universally adopt accident compensation, but he would move slowly toward adopting the further social insurances in force in Europe for fear of disturbing the greatest heritage of the American nation, the self-reliance and independence of the individual. On the other hand, it has been very clearly shown by many investigations that there are large parts of our poorer population that do not have the medical attention that they should have to keep them in the best health and, therefore, to bear their fair share of the world's work. It is argued that whether an individual be a multimillionaire or a pauper, he should have available to him, to his wife, and to his children equal facilities for the care of his and their health, both for his own sake and that of the people as a whole.

If such a system of universal compulsory health insurance can be worked out as will not tend to take away from our people their ability to care for themselves (their self-reliance), then, undoubtedly, the great advantages of such a universal, skilful medical service for the benefit of all, as would be made possible under such a system, would be desirable.

Whether or not we are ready actively to promote this kind of insurance and its corollary, old age insurance, the medical profession of the state, possibly headed by a commission appointed by the legislature and the governor, should give the subject the most careful consideration and study. If this is not done, the chances are very great that legislation covering such subjects will be drawn and promoted by those who do not have the qualifications or information necessary to enable them to solve the problem sanely and wisely; with the result that we stand in danger of entering into a system of undigested paternalistic, injurious governmental activity.

The subject of compulsory health insurance is not directly involved in the topic of my article. I bring it to your attention for two reasons; partly because, to a certain extent, it is related closely to the system of accident and occupational disease compensation, and partly because there will be introduced in our legislature this winter, a very complete measure bearing on it.

The whole range of social protection (accident insurance, accident compensation, occupational disease compensation, other sickness compensation, old age compensation, etc.) is one which needs to be viewed from a higher angle than the merely material. Undoubtedly, we all agree that every man should have so far as possible the right to work, the facilities for obtaining a job, healthful and safe condition of labor, and the facilities available for keeping him healthy and strong. We have plenty of reliable statistics for showing that it is a paying proposition from an economic standpoint to promote this condition among our people. We largely agree also that the man broken by industry, or otherwise incompetent, can be scientifically cared for without the old time stigma of charity and with improved economy, by means of some of the recent developments of civilization.

On the other hand, these subjects are far more vital to us than merely their economic aspect. They appeal to us from the standpoint of the ethical and spiritual side of civilization; the righteousness as well as the economic advantage of accident insurance and compensation has swept over the world; likewise has the world been deeply interested from a moral standpoint in these other social movements for bettering the condition of the individual. The difficulty lies in the fact that frequently when our inspirations are of the best they are based on wrong tenets. So in this case, as civilization moves along and adjusts itself to the great new developments and complications of industry, it will be very difficult for us to carry out our humane desires and aspirations in the way which, while helping on one side, does not do greater injury on another.

There is, however, one true and indisputable principle to guide us, whether we view it from the purely material or spiritual standpoint; that is, that our industrial structure shall be so modeled as to tend to eliminate incompetency by the reduction of unnecessary accidents and sickness and by avoiding conditions which are likely to weaken the strength of character or self-reliance of the individual. This principle gives us a long start in the right direction.

In bringing this subject to your attention, I do so appreciating that the people have the right to look to you for guidance more than to any other profession, and because I recognize in the medical profession of Pennsylvania a class of men of unusual intelligence and ability to observe and draw accurate conclusions from their observations. The whole development of sane social relations, a part of which is touched on in this paper, is very close to your governor's heart. He will welcome, as well as do I, so far as I play a small part in his administration, such help and suggestions as you, as a profession, may be able to give to promote properly the executive work of the government along the lines dwelt on in this paper, and in aiding in advancing its effectiveness.

DISCUSSION

Dr. J. W. Schereschewsky, Pittsburgh: I think we are deeply indebted to Commissioner Jackson for this thoughtful and stimulating address, which contains much material for our most serious consideration. Commissioner Jackson has outlined two of the problems which at present are of the deepest interest and concern to those interested in social medicine, (1) whether certain occupational diseases shall be compensable, and (2) shall we, as a nation, follow the lead of European countries and establish systems of health insurance, as we have followed their lead in providing for compensation for industrial accidents?

Taking up the first question, it seems to me that it is not so much the nature of the injury as the rate and violence with which it is produced, which gives us our conception of the word "accident." When we use the word "accident" we think of a lesion suddenly and forcibly produced. We consider that it is but right and proper that the industry should bear the full responsibility for the suffering and economic loss due to such accidents, yet there has been general objection to including under the head of industrial accidents the suffering and economic loss due to certain forms of occupational diseases, which are just as truly "accidents" of the industry. This attitude gives rise to a number of inconsistencies.

Take for instance, as an illustration: suppose a workman were engaged in waterproofing the interior of a tank with pitch dissolved in benzol. With hardly a premonitory symptom he becomes overcome by the benzol fumes and falls unconscious. Death or recovery will depend on the prompt discovery by his companions of his plight. I believe that we would all agree that this situation constitutes an accident, for which compensation may properly be made. On the other hand, a young girl works in a canning factory, in which adhesive substances dissolved in benzol are used for sealing cans, as a substitute for solder. As a result of the free escape of the fumes of benzol in the workroom, she becomes chronically poisoned, becomes pallid, suffers from nausea, vertigo, and weakness, large purpuric areas develop on the body, the blood pictures show great diminution of leukocytes, and, in addition, one resembling that of pernicious anemia. In spite of transfusions and other measures, she dies.

In both instances the agent causing the death has been the same, the only difference being the period of time in which it was produced. Both of them arose from causes existing in the industrial environment of the individual. Their social and economic status, their home conditions, their probable ignorance of the laws of hygiene had no connection with the outcome. The inference is logical, that if it is right to compensate for the first instance, it is equally right to compensate for the second.

Again, as pointed out in Mr. Jackson's paper, compressed air illness must clearly be classed as an industrial accident, for even if we maintain that no injury or disease arising from an occupation is an accident unless suddenly or violently produced, surely compressed air illness, or rather decompression illness, has all the ear marks of an industrial accident. In this condition, it is well known that the lesions are produced by the sudden release, in the form of bubbles in various parts of the body, of gases, chiefly nitrogen, which have been absorbed by the body tissues in accordance with Dalton's law while the worker was exposed to high pressure. The bubbles themselves consist of an inert gas devoid of any toxic properties. Their action is entirely mechanical, either blocking the circulation or in extreme cases lacerating the nerve tissues by mechanical violence. We have here, then, symptoms which are caused by an act which is sudden and forcible. No one can doubt the justice of compensation for an injury suffered by a man the victim of compressed air illness.

On the other hand, there are other diseases in which the occupation undoubtedly is a factor, yet other circumstances peculiar to the total environment of the affected individual also play a part. Thus we know that the rate of death from tuberculosis among garment workers and hard rock miners, for instance, is very high. The occupational factor in the first instance is a sedentary indoor occupation, faulty posture, low average wage, and irregularity of employment. In the second instance, the exposure to rock dust plays a prominent part. Yet it would be difficult to see how tuberculosis in such individuals can be included under the head of occupational accidents.

I think we can agree, as has been outlined, that occupational diseases, so far as society and the individual are concerned, may properly be regarded as accidents. It would seem that social justice demands that the workman be compensated whenever he suffers or dies as the result of such accidents, especially so as he is often a victim through the fault of the industry, rather than through his own.

The list of occupational diseases included under these accidents in England seems fairly just. Certainly if occupational diseases such as caisson disease; various poisonings, such as with lead, arsenic, phosphorus, benzol, analin; local lesions produced by bichromate of potash, anthrax, and diseases of similar character were treated as industrial accidents, we would thereby furnish a financial incentive for improving industrial conditions. Already the campaign for industrial safety has generally turned the attention of industry toward the huge economic loss resulting from preventable accidents. Incidentally it has also caused much greater attention to be paid to industrial sanitation. The treatment as accidents of industrial diseases of the type just mentioned would emphasize the need for better industrial sanitation.

In regard to social insurance, I would say in a word, this must certainly be regarded as our next most important social advance. I agree with Mr. Jackson in that, while we may concede the importance and desirability from a social standpoint of making this advance, we should profit by European experience, so that we can improve on it. What we need in the social insurance laws of this country, is an opportunity to utilize to the fullest extent the great prophylactic possibilities which such a law might present. I need hardly point out that if the cost of such insurance were conditioned in a special locality or industry by the general prevalence of disease, it would create a strong financial stimulus to preventive measures. It would then be to the interest of the industries, the public, and the employee to make the incidence of disease the minimum. With a system of social insurance conceived with this in view, who can doubt but that giant strides would soon be made in preventive medicine.

Dr. H. F. Smyth, Philadelphia: I have no dispute with Mr. Jackson's excellent paper and can add little or nothing to its value but I would like especially to emphasize several points.

I think the medical profession and the public generally will agree with him that in theory the products of industry should bear the cost of loss of life or competency through strictly occupational diseases. The difficulty comes in deciding just what may be considered as an occupational disease. Accepting Dr. Thompson's definition, as Mr. Jackson does, does not completely solve the problem. Accidents are self limited, definite and usually not progressive, while diseases are complex and progressive often after the cause has been removed and are greatly influenced by conditions without as well as within the industry. In deciding on the rôle and responsibility of an occupation or industrial process in the causation of a specific diseased condition we must consider the individual's previous occupation, his general health and physique, his personal habits and home hygiene as well as the general hygiene of the plant where he is employed and the special precautions taken to minimize the particular hazard. All these factors make the problem a much more difficult one than that of accident compensation.

As Mr. Jackson says, the definite occupational diseases are limited in number. The metallic poisonings, poisoning from benzine derivatives and methyl alcohol, poisonous gases, anthrax and caisson disease almost exhaust the list.

In beginning work on these lines I feel with Mr. Jackson that at first compensation should be limited to these diseases, but that some authority should be given to responsible persons or body without further legislation, to increase the list of compensable diseases, as has been done in England, after further study by the department and other physicians and by occupational disease clinics, which should be encouraged. To do this, full reports on all occupational diseases should be made compulsory. Such reports should show not only the disease but the industry, the special process, the previous occupation, previous attacks, if any, duration of disease, special as well as general symptoms. The tabulation of such reports should show the proportion of diseased to healthy individuals in the industry or process.

To show the great need of such reports and the present lack of the same in this country, I would like to give the results of an investigation conducted by myself last spring in connection with teaching the subject of industrial hygiene. In Trask's pamphlet on Vital Statistics, he tabulated sixteen states having laws bearing on the reporting of occupational diseases. A query addressed to the responsible authorities in these sixteen states disclosed a remarkable lack of uniformity and in most cases an entire lack of any statistics worth while in such a study. Thirteen out of sixteen states answered my query; four had no reports or almost none on file, two owing to changing authority (from Board of Health to Department of Labor) were apparently just beginning to pay serious attention to the matter; two gave very meager reports of one or two diseases; one had fairly good reports of deaths, which, however, must be picked out of the general mortality statistics, and only three gave good usable data and only one of these gave proportion of sick to well operatives. The state which furnished the most complete data had reached no further than 1913 in their tabulation.

So, I repeat, in this country we know, as yet, little or nothing about the effects of most important occupational diseases as they occur under the conditions of work as they exist in this country. The adoption of general health insurance for workmen would minimize some difficulties of decision but I doubt if this country is yet ready for this.

Dr. James M. Johnston, Huntingdon: From the physician's standpoint certainly some effort should be made to have medical cases as well as the surgical come under the Workmen's Compensation Law. Very little provision seems to have been made for the medical cases. In an accident case the fees are fixed. An individual who is injured is required to report to his employer before seeking medical advice and is then directed to whom he shall go. I believe this is an unfavorable situation; for example, men are sometimes injured near a physician's office; blood vessels may be torn and hemorrhage occur, and the man's life lost if he first must consult his employer about medical attendance. I feel that the right should be given the individual to go to whatever physician he wishes. Contract work at best is not to be looked on with much favor in my opinion. Limiting the rights of the injured individual in the choice of his physician I believe to be an important error in the present law. Then again some of the insurance companies are trying to make money out of the law by endeavoring to say how much they will pay in different instances, or trying to avoid the payment of insurance after the accident does occur.

Dr. James I. Johnston, Pittsburgh: As an internist it seems to me that this matter will not be so easily settled as the commissioner indicated. It is just beginning to touch the medical man. I have a letter from a lawyer, stating the following condition: The letter is mandatory in its language, demanding a diagnosis in a man whom I had recently under my care, and who had applied for compensation under the new law. The man was a coal miner, an occupation which is conducive to fibroid phthisis. The man had sustained a broken rib, and under the law he was entitled to broken rib compensation. He, however, claims that he does not get well. In the medical service of a large hospital, this falls to me. In the course of observation, he is sent out and sent back to his doctor with a diagnosis of established tuberculosis. The patient claims that until February when he was injured, he was perfectly well. The case presents some very complex questions. We all know that in a chronic affection there is a certain amount of resistance of the body. This man probably had tuberculosis and, when injured, his resistance was lowered and the tuberculosis became active. How to meet the case and treat the man justly is difficult to determine. Many men can go on for years having fibroid phthisis and be good wage earners. This is an instance of similar claims which may be made and shows the possible complexity of the question in connection with the work of the medical man.

Dr. F. D. Patterson, Harrisburg: Mr. Jackson has asked me to express to you his very deep regret that he was obliged to leave this meeting before the time of its adjournment, because he had an engagement to go with the Governor of this commonwealth to another portion of the state and thus, at his request, I have the honor to close the discussion in his place.

The definition of occupational diseases mentioned by Mr. Jackson is one which I had given him from the book on this subject, by Dr. Gillman Thompson, and this definition of an occupational disease is in many respects a most admirable one and the best we have at this time, but I am sure that we all feel that one of the present needs is a definition of the words occupational diseases which will stand no matter what test it will be put to.

I wish to make on behalf of the department, of which Mr. Jackson is the distinguished head, an urgent plea to the medical profession of this state that the department be given by the physicians of our commonwealth definite statistics as to the incidence of vocational diseases. As you know we have in Pennsylvania no law requiring that vocational diseases shall be reported to the state. It would be of very material service to the state government if we had exact knowledge of the occurrences of the various diseases in our industry, and it would then be possible to chart out the state and thereby locate the spots where there is the most trouble. I am sure that you will agree with me that an ounce of prevention is of very much more value than the pound of cure in our occupational diseases, and those of you who come in contact with such manifestations as the drooping wrist trouble in lead poisoning; chills in the brass worker; and the frightful conditions of the gums in mercury poisoning, must agree that the ideal would be prevention rather than cure. The state has a very keen interest in the health of those who toil for their daily bread and undoubtedly the next session of our General Assembly will have before it much legislation which should be of keen interest to all members of our profession. Health Insurance, compensation for occupational diseases, and material changes in the Workmen's Compensation Act are all bills which certainly will be introduced by various interests for the consideration of the legislature and the governor.

In regard to the employer under the Compensation Law being given the right to choose the physician whom the employee shall consult, I may say that the purpose underlying this provision was that the employer by reason of his social position was better qualified to select the physician who would give the best care than was the injured man. That is particularly true regarding some of the foreign laborers in this state who, on the first sign of illness, do not consult the physician but the padrone to know which physician they shall see. The idea was to break up the system of having incompetent physicians attend the ignorant foreigner. The Compensation Board has ruled, as I am sure you all probably know, that while it is stated in the Act that the employer shall select the medical attendant, if the employee seeks his own doctor he is not to be deprived of compensation. The only trouble that may arise is in the event of the man being rendered a chronic case by the treatment of such physician whom he has selected.

In conclusion I have the honor to ask on the behalf of the Department of Labor and Industry the cooperation of the medical society of this great commonwealth that a united medical profession shall stand back of us in our efforts to prevent occupational diseases and industrial accidents, and if they will tell us of the cases of occupational diseases within the state, we shall leave no stone unturned to make the necessary changes in the working conditions that will prevent the occurrence of such diseases. Let us all join hands in an effort to make the working conditions within our commonwealth such that our citizens may live longer and live better, and take home with us this thought, so ably expressed by the poet laureate of England, who said:

> Ring out the slowly dying cause,
> And ancient forms of party strife;
> Ring in the nobler modes of life,
> With sweeter manners, purer laws.
>
> Ring out false pride in peace and blood,
> The civic slander and the spite;
> Ring in the love of truth and right,
> Ring in the common love of good.
>
> Ring out old shapes of foul disease,
> Ring out the narrowing lust of gold;
> Ring out the thousand wars of old,
> Ring in the thousand years of peace.
>
> Ring in the valiant man and free,
> The larger heart, the kindlier hand;
> Ring out the darkness of the land,
> Ring in the Christ that is to be.

SYPHILIS AS AN ETIOLOGICAL FACTOR IN LAENNEC'S ATROPHIC CIRRHOSIS OF THE LIVER

Dr. Douglas Symmers in a study of atrophic cirrhosis of the liver in the *International Clinics* concludes that alcohol plays a secondary rôle in the etiology of atrophic cirrhosis of the liver. A certain percentage of the cases conform to the type described by Laennec. In this group syphilis is the primary etiological factor and alcohol, if it enters into the process at all, is contributory, and not essential.

CRANIAL NERVE SYPHILIS; WITH TECHNIC OF TREATMENT*

FORD EASTMAN, M.D.

ERIE

Inflammations of the optic and acoustic nerves in the secondary stage of syphilis often do not respond to specific drugs with the mathematical promptness usually shown by similar lesions of other structures. This is also true of the sometimes rapidly destructive nerve lesions of tertiary syphilis; while the more slowly progressive but equally tragic so-called parasyphilitic lesions of these nerves seem, like paresis, to be almost beyond the influence of our most vigorous therapy.

The poor blood supply, the anatomical relations, and the phylogenetic lack of resistance of highly specialized tissues explain the frequent partial failure of treatment in early syphilis of these nerves. In considering lesions of the taboparetic type, we must recur to the theories as to the difference between syphilis and parasyphilis.

The idea of tissue allergy or anergy is interesting. Reasoner's recent studies are strong evidence that change occurs in the parasite; strains from the original infection, that are prone to attack certain tissues, to produce characteristic lesions, and to become relatively immune to spirocheticidal drugs, develop in the same host. Brilliant results from subdural treatment of cerebrospinal syphilis resistant to systemic medication with the same drugs support the experimental finding that specifics do not filter from blood to cerebrospinal fluid in adequate concentration. Schoenberg has demonstrated the physical difficulty, by either intravenous or lumbar subdural injection, of bringing solutions into contact with spirochetes entrenched in the optic nerve.

The temptation to endless speculation in the study of this disease is very strong. The profitable conclusion in the present state of our knowledge is that only by early eradication of the infection can we hope to prevent luetic deafness and blindness.

Some one has remarked that the modern treatment of syphilis is mere mathematics. The treatment of the patient, however, is a philosophical problem. Your average syphilitic faces months or years of costly, irksome, more or less painful treatment, the greater part of it when the only evidence of his disease is in a test tube. An aching mass of insoluble mercury in the buttock, the slight pain of venipuncture, a single night of chill, headache and fever from an overdose of salvarsan, almost anyone will bear patiently. Everlasting repetition of these lesser miseries may wear out the resolution of a hero.

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* Read before the Section on Eye, Ear, Nose and Throat Diseases of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 21, 1916.

Our introduction to salvarsan was most unfortunate: under the mystic title "606"; a single dangerously toxic injection a sure cure; its administration to be surrounded with all the ceremony of a major operation; the whole procedure publishing to the four winds the patient's misfortune. We soon learned that a single injection may be worse than none; we have been slow to recognize that the individual level of tolerance of the drug varies within wide limits; that its administration requires little more preparation than does a hypodermic injection of morphin.

The apparatus for intravenous injection which has given me perfect satisfaction for the past year cost as many cents as my complicated one, now in the attic, cost dollars. It consists of a laboratory wash bottle, an atomizer bulb attached to the short tube, 12 inches of rubber tubing carrying a Luer needle adapter attached to the long tube. Driven by the elastic, easily controlled air pressure in the bottle, the entire injection may be easily given through the finest hypodermic needle, so that any vein large enough to be seen may be used. No salt solution is required. The salvarsan is prepared with 20 cubic centimeters of distilled water to each decigram of the drug, filtered into this bottle. Air is expelled from the tube by pressure on the bulb, the puncture made, and the injection given. With very little experience one knows by the feeling when the needle is within the vein.

Endermic injection of a half minim of novocain solution through the finest hypodermic needle at the proposed puncture site is well worth while, from the viewpoint of both patient and operator, when the intravenous needle is 22 gauge or larger. It is also advantageous to carry the needle half an inch or so under the skin before entering the vein. This supports the needle at two points, obviating its tendency to tear a thin walled vein on slight motion of patient's arm or operator's hand.

In this manner I have repeatedly without assistance and without leaving the slightest telltale mark injected veins so small that their injection by either gravity or syringe methods was impossible for me. The whole procedure requires less than ten minutes, is painless, and leaves the patient's infection a secret between him and his physician. It is so simple a technic that a fee which puts intensive treatment within the reach of people in very moderate circumstances is ample compensation.

We must abandon the futile pill for the needle in the use of mercury. Results, both clinical and serological, from intramuscular injections of the salicylate have been satisfactory to me; but only an occasional patient will bear the pain following these injections. For six months I have used the intravenous method of Lloyd Thompson, preparing the bichlorid with blood serum or ascitic fluid in large quantities whenever the medium was available, preserving it in 5 c.c. ampoules. The preparation is time-consuming, but the injections are effective and practically painless.

With subdural methods, the only severe reactions have followed the use of the large amounts of serum required by the Swift-Ellis injection. Much less severe reactions follow the injection of more salvarsan and less serum by the technic of Ogilvie. Injections by the method of Gennerich, first given by Wile in this country, using a solution of old salvarsan, diluted with spinal fluid at the bedside, cause very mild reactions and appear to be equally effective.

I think there is no question that cases of nerve involvement showing pathological spinal fluids can be treated subdurally from the first with advantage.

Case 1.—A milliner, aged 31, had had a lip chancre one year previously, which healed after two intravenous injections of neosalvarsan. For three months she had had three or four epileptic seizures daily; insomnia, headache, vomiting, and failing vision. She had a scaly palmar syphilid, sluggish reaction to light of the left pupil, and bilateral optic neuritis. Central vision was not impaired, the fields were irregularly contracted, slightly. Three weeks later, after ten injections of bichlorid intravenously, the neuritis had subsided, all symptoms were relieved, and she stopped treatment.

Case 2.—Yardmaster, aged 45, had had a chancre one year previously, and received mixed treatment. Three months later salvarsan intramuscularly was followed by optic neuritis. An intravenous injection of salvarsan was of no benefit. He was referred to me by Dr. Dunn, Feb. 10, 1915. Visual fields were about normal, both disks badly swollen, vision 5/12 in both eyes. In the same month he had two intravenous injections of salvarsan, without benefit. March 3 he received ⅕ mg. intraspinally. Fluid Wassermann test was —, cell count 80, globulin abundant. Serum Wassermann was —.

March 12 he was subjectively much better. Swelling of the disks was much less, vision 5/7½ in both eyes. He was given ¼ mg. subdurally. Serum

Wassermann was —, fluid four plus with 1 c.c., no globulin, cells 2. An intravenous injection two weeks later made his eyes subjectively worse. April 18 Dr. Dunn reported vision worse, swelling increased, and advised a return to mercury, iodid and strychnin. After three injections of mercury the patient quit.

November 1, seven months later, he turned up, with vision 5/15 right, 5 5 left, fields about normal. December 13 I removed his appendix which was acutely inflamed, thereafter strapping his abdomen, which relieved his constipation and indigestion. Feb. 6, 1916, the disks were badly swollen, fields slightly contracted, vision 5/10 in both eyes. Twenty inunctions, with iodid in moderate doses, gave him no benefit. March 7 he had ¼ mg. salvarsan intraspinally. Fluid and serum were normal. March 13 vision was 5/7½ right, 5 9 left. March 28, patient was in excellent general health, disks were much swollen, vision 5/12 in both eyes. For three weeks he had mercury by intravenous injection; vision was 5/9 in both eyes, fields almost normal, disks still swollen.

The nerve lesion improved somewhat with the first spinal injections; but seemed to be made worse by the last one, given in despair, perhaps unwisely, when laboratory tests of both fluid and serum were negative. At this time both Dr. Dunn and myself woke up to the fact that this patient was not following directions with regard to his outrageous consumption of tobacco. We have not been able to see him since. This inflammation, syphilitic at first, may have been kept up by nicotin, and perhaps arsenic and mercury, after the subsidence of the syphilitic process.

Case 3.—Tabes in the ataxic stage, with optic neuritis and atrophy. The chancre was twenty years ago. Tabetic symptoms for two years, eye trouble one year.

Jan. 3, 1915, patient was referred by Dr. Dunn. Vision was 5/9 in the right eye, fingers at two yards in the left. The fields were contracted to about thirty degrees. Serum and fluid were pathologic by all tests. After four intravenous and four subdural injections, there was improvement, very great, in general health and the tabetic symptoms. The left eye is blind; vision in the right eye is 5/8, the field a very little larger. Serum and fluid remain strongly positive.

Case 4.—A man of 40 had his chancre ten years ago, with a few months of desultory treatment. He has had tabes one year, shows the classical signs. In June, 1914, the vision was corrected to normal in both eyes, the disks were very swollen, showing flame-like hemorrhages.

July, 1915, after three intravenous injections of salvarsan, mercury by inunction and iodid, the disks showed no change, the fields were contracted. Tests of fluid and serum were strongly positive. January, 1916, after three intravenous injections and three subdural, the fields were more contracted, vision 5/15 right and 5 9 left. The neuritis was receding. After two months without treatment, vision was 5/20 right, and 5 12 left. He received three more intravenous and three more subdural injections, and reported four months later with vision 5/30 right and 5 7 partly left. The fields have contracted about one third in the year under treatment. Tabetic symptoms are greatly relieved.

Case 5.—A society woman, aged 28, has congenital syphilis. For several years she was neurasthenic, with insomnia, constipation, muscular pains, headache. Sept. 27, 1915, the left pupil showed the Argyll Robertson phenomenon. The visual fields had contracted to about 70 degrees in the past year. Serum and fluid Wassermann tests were both positive. No other actual signs of syphilis.

Three weeks after the last of six intravenous injections of salvarsan at ten-day intervals, there was considerable improvement in health. Either in spite of, or because of, these injections, the fields had contracted to smaller than a silver quarter. The central vision remained intact, the disks objectively normal. The serum was faintly positive, the fluid negative in all phases except a small amount of globulin. Four weeks after a subdural injection of ¼ mg. salvarsan, the fields were twice as large, the general health very strikingly improved. A second spinal injection was followed by still further enlargement of the fields.

May 1 the fluoroscope showed extreme ptosis of stomach and colon, which was treated with a suitable support. During May she had one spinal and two intravenous injections of salvarsan, and a thorough course of mercury intravenously. At present the fields remain as at the last examination, the disks and central vision remain normal. The fluid shows no pathology, the serum is faintly positive. The patient is hardly recognizable as the same individual. See Figures 1 to 6.

Time forbids the outlining of several cases of eighth nerve involvement, in which results have been a little more satisfactory,

My experience is that the prognosis, doubtful in many cases, is not even doubtful in taboparetic types of nerve syphilis, whether these be frankly inflammatory or the so-called primary atrophy. Subdural methods, of such striking value in treating the other manifestations of tabes, have not changed the outlook so far as the second nerve is concerned. Intracranial methods perhaps offer a shadowy hope.

It remains for years of observation to answer whether early apparent eradication of the infection will prevent the nerve tragedies of the later stages. Our present duty is to encourage our patients to endure sufficient treatment early in the disease.

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DISCUSSION

Dr. David N. Dennis, Erie: It is unfortunate that the neurologist and internist could not be included among those present, to discuss this paper. Without them the discussion must be more or less incomplete. The investigations of Noguchi, Graves, Uhlenhut, Mulzer and others have proved the presence of the living spirochete in the cerebral cortex, in the blood and in the cerebrospinal fluid of tabetics and paralytics, and also their full virulence through positive inoculations.

From an etiologic standpoint, there is no difference between syphilis and parasyphilis. The difference in behavior between cerebral lues, tabes and paresis is, I think, the difference in the location of the organism; also the probable selective, shall we say instinct, developed by the different strains for certain tissues, as mentioned in Dr. Eastman's paper. The earliest probable disturbance is from the toxic material produced by the parasite, which is found long before any real tissue change begins. Is there a way of detecting this early disturbance? This would be the time to treat, the time most lasting results would be obtained. Dark adaptation of the retina holds out some hope of finding such an early manifestation.

In a paper by Stargardt and reviewed in the *Ophthalmic Review* for 1910, there is given an interesting account of observation taken in various conditions of the eye, as to dark adaptation. Piper has made many accurate observations, and with his "adaptometer" has seemingly reduced this phenomenon to something like accuracy. Behr of Kiel has made many careful and accurate examinations, and is quite convinced that a very early manifestation can be demonstrated. I have had but little experience with this method, having nothing but the old Forster instrument, but I am convinced that by the use of a better instrument much might be found by this method.

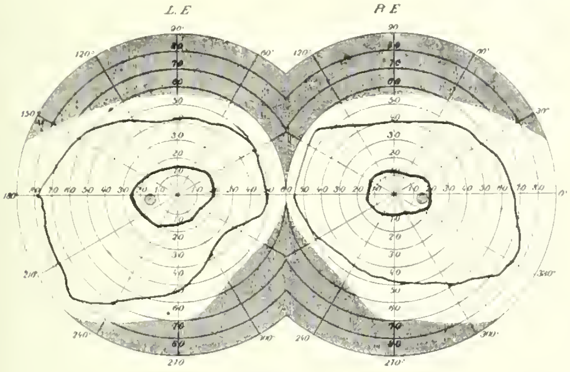

Fig. 1.

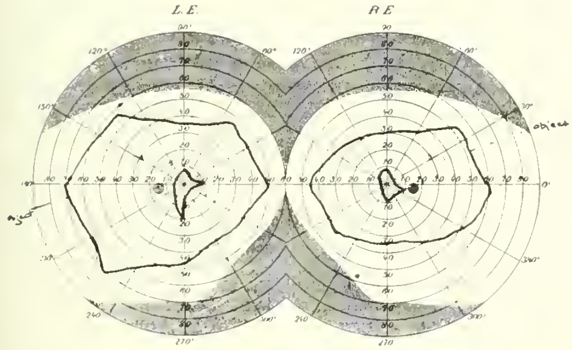

Fig. 2.

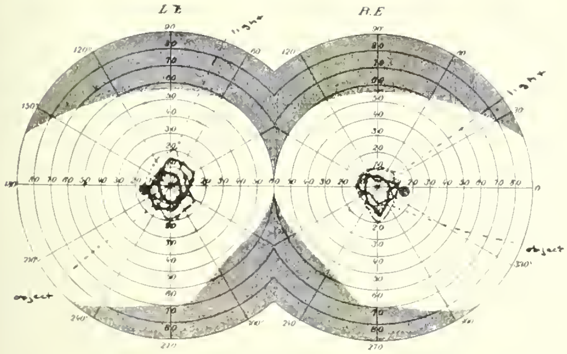

Fig. 3.

The case reported by Dr. Eastman as Number 5 I have had occasion to follow from the first noticeable manifestations. The patient first complained of headaches and a blurring of reading vision. The vision was 20/20 in each eye, but the accommodation was partly abolished in the left eye. The pupil of the right eye reacted normally to light and accommodation. The left pupil was larger than the right, and did not react to light, and but slowly to accommodation. The right fundus was normal; in the left, the nerve head was possibly a little whiter than in the right. The field was noticeably smaller in the right eye than in the left, both for form and color. The fields became much smaller during a few months of general treatment. She was thoroughly examined by an internist who found nothing abnormal except a positive spinal Wassermann reaction. The blood was negative. The treatment as explained in Dr. Eastman's paper was then given. An interesting

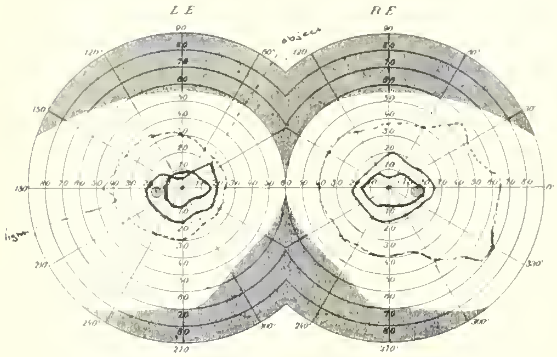

Fig. 4.

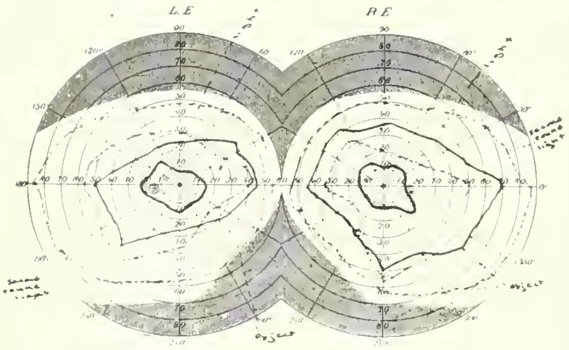

Fig. 5.

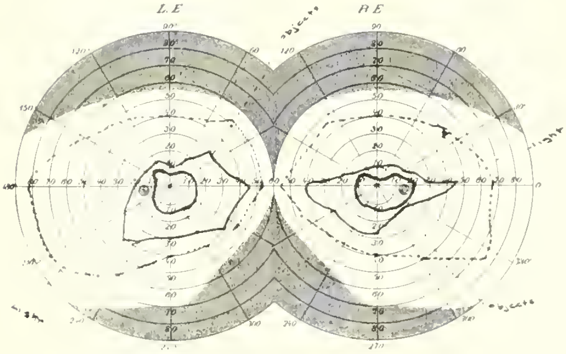

Fig. 6.

phenomenon was noticed after the first intraspinal injection. The left pupil that had been dilated became contracted, but the absence of light stimulus remained, the accommodative reaction was a little more pronounced. The pupil of the right eye remained unchanged. Will this improvement remain? The last field taken is a little smaller. Has a process started that will progress in spite of treatment, or is the condition arrested? Time alone will tell.

I would like to ask Dr. Eastman if there are any unpleasant after-results. I have heard of severe back pains, neuralgias, etc., after this form of treatment.

We should remember that a negative finding in the Wassermann test is not conclusive, but we do not want to say that a person has syphilis present on the word of a Wassermann alone.

Dr. Nelson S. Weinberger, Sayre: I should like to ask one question. I understood the doctor to convey the idea that 18 per cent. of normal persons without any syphilitic infection give a positive Wassermann reaction. Do you regard that as perhaps due to some error in the technic or as a positive fact?

Dr. Dennis: These are the statistics given by the laboratory.

Dr. Weinberger: You can have a negative Wassermann in cases in which the disease is undoubtedly present, but I had always thought that a positive test meant an infection.

Dr. Eastman: The everlasting argument about the Wassermann reaction still continues. If we get a completely positive Wassermann reaction twice in an apparently normal individual and know the work of the man that made the test, I think we are justified in stating that the person examined has syphilis.

Dr. George W. Mackenzie, Philadelphia: We hear the term "syphilis" and the term "parasyphilis"; and we also hear of patients showing a positive Wassermann who have syphilis, and of persons with syphilis who have a negative Wassermann. Obersteiner pointed out, six or eight years ago, that parasyphilis is really not syphilis, but merely the aftermath of syphilis that preceded it. In other words, a patient may be cured of his syphilis so far as the presence of organisms are concerned, and yet have a continuation of his parasyphilitic process. Parasyphilis, as Obersteiner explains, is due to the cicatricial contraction of the pial membrane involved earlier in the syphilitic process about the posterior roots as they enter the cord or brain stem. Indeed a study of microscopic sections from the cord in tabes indicates clearly that the sclerosis begins at a point where the posterior roots enter the cord. As the posterior roots enter the cord the sensory fibers go in several directions but mostly to the posterior column, but they do not go there directly for most of them ascend for some distance before entering the posterior column and some descend before entering. Obersteiner, Schultz and others were led to the discovery of distinct bundles, largely by the study of the degeneration of these fibers in tabes. The fact that parasyphilis is not syphilis but a secondary change in tissues previously involved in the syphilitic process may account for the variable findings in different cases. In other words, a parasyphilitic will show a positive Wassermann so long as the original syphilis remains uncured, while a parasyphilitic will show a negative Wassermann if the original syphilis has been cured. The cure or noncure of the syphilis has but little to do with the progress of the parasyphilis, when once begun.

Dr. B. Alexander Randall, Philadelphia: Dr. Eastman's remark that if he knew the man who made the Wassermann, he could be sure of his diagnosis, is the basis of a great deal that is of value in the matter. I know a very good man who gave up his position as pathologist to a hospital because they were not satisfied that he should give them the results of his Wassermann examinations unsigned. He was as competent as the majority of those making such investigations in Philadelphia, but making few of them at any one time. He did not trust, with his limited experience, his own results and was not willing to sign reports. Being himself a syphilographer, he trusted the reports in regard to syphilis, of only two or three in Philadelphia, where there are many who are making such examinations. Therefore, the results of the Wassermann test must be taken with a very large grain of salt, as has been said.

The occurrence of the syphilitic involvements is almost primary, and that of early secondary involvements is not generally considered; but I wish to put on record the case of a physician who came to me with the scar of a finger chancre from needle-prick four weeks before still showing, and yet with nerve deafness already distinctly recognizable, and an optic nerve that was foggy and swollen. In this case, I should like to commend what has always seemed to me a rational treatment, and one that was highly considered long before we had salvarsan; and that is its approximate equivalent, the Donovan solution, which is easier and simpler to use, and is capable of accomplishing very good results. This doctor was emphatically better in a month from the use of it, and was in a condition to tolerate the salvarsan, which he then received in a sufficient amount to sterilize his system, so to speak, and get rid of his spirochetes.

We have many instances of nerve involvement following the use of salvarsan. For the meeting of the Otological Congress at Boston, some time ago, I set, as one of the problems to be discussed, the salvarsan injuries of the eighth nerve, believing that there would be an enormous number of cases reported. I was, however, agreeably surprised to find that there were not so many cases in which nerves had been damaged by this means as expected; although I fear that not all were recorded that occurred. In a case that I was treating last year, in which the optic nerves were greatly swollen and the fields contracted in a young woman, presumably with inherited syphilis, who had had iodid for a good while, large doses of the Donovan solution were given with great toleration. Then I had the neosalvarsan employed, when it seemed safe to use it. Vision immediately failed, and she has been virtually blind ever since in spite of temporal decompression. Although the preparation of this patient for the employment of this treatment had been carefully done, and it had seemed as if it ought to be safe to use it, the result was lamentable, as stated. This was followed by lumbar injection of mercurialized serum in the spinal canal by a careful man, and she has had bad sciatica ever since. We must remember, in dealing with these cases, that there are a great many points of doubtful issue, even in good hands, when such potent remedies are employed.

Dr. Clarence M. Harris, Johnstown: I should like to make a few remarks regarding the Wassermann reaction. The statement about its being negative during persistent nerve involvement tends to confirm my own observation in that direction. Under certain of these circumstances, this fact is very embarrassing. A patient has been told, for instance, that the Wassermann reaction is negative; yet the oculist sees the persistence of optic-nerve involvement and desires the patient to have more treatment. A proper diagnosis has undoubtedly been previously made, but the patient has been told that he is cured of syphilis, and both the family physician and the patient become very doubtful about the judgment of the ophthalmologist under the circumstances. Indeed, I recollect one case in which a great deal of damage ensued through neglect subsequent to a negative Wassermann. I think that it is a mistake, in some instances, to have the Wassermann test made.

DR. EASTMAN, closing: I thought that everyone now agrees that we must not use the term "parasyphilis" in the old sense any more. Tabes and paresis are syphilis, as proved by the abundant confirmation of Noguchi's discovery. The term may still be of value, however, in describing syphilitic lesions which do not yield to salvarsan, mercury, and the iodids; be they in the central nervous system, in the aorta, or in the perirectal tissues. The cause of these lesions I believe to be a strain of spirochetes derived from those producing the original infection in the same host, differing from their forebears in their immunity to spirocheticidal drugs. The term "parasyphilis" may be applied to processes caused by such strains of parasites.

THE USE OF PRISMS IN OPHTHALMIC PRACTICE*

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Any material deviation from the normal rotary limits of the eyeball constitute an incoordination of all the muscles of the eye. This deviation may be small in degree, coming under the head of the phorias, or greater in degree coming under the head of tropias. Deviations of any kind are dependent on: (1) cerebropsychic exhaustion; (2) lesions along the nerve tracts; (3) anatomic, skull and orbital malformations, false insertions, etc.; (4) compensatory, muscle hypertrophy and muscle degeneracy. Valk[1] emphasizes a distinction between the terms paresis and paralysis, as follows: Paresis is an incomplete paralysis, in which there is some pathologic condition as its primary and essential cause. This cause may exist at any point throughout the course of the nerve supply from the cerebral center to the peripheral ends of the nerve which controls the action of the muscular structure. On the other hand, in heterophoria there is an abnormal functional condition of the muscle, not due to any pathologic condition of the muscle but to an abnormal development or an abnormal insertion of the muscle into the sclera. I agree with him, in so far as "there is an abnormal functional condition of the muscle in heterophoria, not due to any pathologic condition of the muscle"; but I do not agree with him that this abnormal functional condition of the muscle is always, or even in the majority of cases, dependent on hypertrophy or false insertion of the muscle.

The complexity of the eye muscles in their anatomic relation and their intricate workings as influenced by that keyboard of complex multiple nerve centers is to my mind a much more logical point to look for disarrangement of coordination. I believe there can be and often is a compensatory hypertrophy of an individual ocular muscle, from overtonus, through the reflex ciliary arc, but I do not agree there can be any successful hypertrophy. The hypertrophy, when it does exist in the way of compensation, is an error in itself, added to already existing errors.

In many cases of orbital malformations false attachment of ocular muscles are compensatory and are normal for that particular eye. Even if they do not successfully compensate, it is probably an improvement over an attachment such as would be given to a properly formed orbit.

Rebers' treatise[2] on the subject of skull and orbital malformation in which he advocates the careful consideration of operative procedures on the ocular muscles prior to the full development of the orbit at puberty, has been a most valuable hint to those who have been operating at an earlier age. That a convergent and ciliary overtonus exists up to the age of puberty, I am convinced, and whether this overtonus is diminished at that age by the complete development of the skill, as Reber claims, or whether it is diminished through the mature development of the sacral segment of the nervous organism which is dominant at this age, for the evolution of the sexual function and with it a coincident lessening of tonus of other segments, which have in their order been dominant, as Walter says, matters little to the operator since both of these claims, so scientifically based, show the same end and conclusively prove to the thoughtful operator that overtonus of the ocular muscles does exist prior to puberty and

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[*] Read before the Section on Eye, Ear, Nose and Throat Diseases of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 21, 1916.

[1] Valk: Ocular Rotations in Paresis.

[2] Reber: Indications for Operations of Strabismus, PA. MED. JOUR., Vol. XVIII, p. 602.

is materially diminished at puberty, and that any operation for the tropias prior to that age must be done subject to the ultimate conditions. I think these two men have brought out and definitely settled one of the most important points in ophthalmology.

Partial tenotomies never appealed to me for the reason that, so long as any part of the tendon remains unsevered, the deviation is practically unchanged and the buttonholing of a muscle simply wounds or lames it from which it soon recovers. The operation described by Todd is, to my mind, a logical operation for the lengthening of a muscle and is particularly adapted for successful correction of low-degree heterophorias.

At the Cambridge Springs session, 1908, I read a paper entitled "Analytical Description of the Eye as an End Organ."[3] I made a distinction of the dissociation between volition and energy, as follows: Energy is latent, whether it be steam, compressed air, electricity, or what not, and it remains latent until released. The locomotive is impotent until the throttle is pulled open. The blast must be ignited before its energy is made manifest and the energy necessary for the movement of the body is subject to our volition and is latent until released by our will. What greater proof is needed of a dissociation between volition and energy than the very apparent fact that, no matter what the degree of impairment to the energy may be, volition is unaffected and continues to discharge energy in the maximum degree. Energy much limited in supply is voluntarily released to motor muscles in excess of production. There can be no connection between the two since their action is totally independent. Volition is the expression of the intelligence; energy is a product kept in storage until it is transmitted voluntarily to the motor muscles through the nerves which are in no way responsible for the degree of that energy. Energy has nothing to do with the nerve, which can only convey it, or the muscle which receives it, which can only consume it. The sole concern of the nerve is its conductability, so it may properly convey energy in whatever degree liberated. Dr. Will Walter of Chicago, in an exceptional and most valuable paper entitled "The Etiology of Nonparalytic Ocular Imbalance," published in the presession volume of the American Medical Association's section of Ophthalmology of this year, dissociates completely the voluntary from the reflex ocular muscle movements by the construction of levels of control for the ocular muscles, as follows:

> These so-called levels of control are in the light of present knowledge quite accurately oriented for the high or third and the first or low levels. Evidence is only now, and as the result of the pathologic findings, accumulating and is only approximate as to the midlevel. The high, or third level, or that of voluntary control, by virtue of which we may perform associated movements of convergence of dextrovergence, sinistrovergence and sursumvergence in response to will, is beyond doubt in the frontal lobes. Its control centers (at the foot of the second frontal convolution) do not, however, respond to optical, acoustic or tactile impressions. This level of control does not enter into the etiology of nonparalytic imbalance. Neither are we concerned primarily with the low or first level control of individual muscles. The ocular muscle does then what it is stimulated to do, contracts in proportion to its stimulus. The relay stations, wherein the amounts of stimuli are apportioned to the individual muscles, are what we term the second level control. There is a difference between the will, the initiating mechanism in its broadest sense (frontal cortex), and the way, or the subconscious reflex coordinating mechanism (occipital cortex), which goes on independent of volition. If we do not accept this, even though we cannot locate the control centers accurately, we have no basis but empiricism for the use of prisms for exercise or orthoptic training of any sort or prescribing of convex lenses to lower the impulses of convergence or concave lenses to stimulate them, or prisms for wear, or cycloplegia or any of the means we employ in the management of these cases. All of these measures operate beside volition and in a purely reflex way. Nor is the level of control limited to retinal impulses. With it are included impulses from the tactile, olfactory, auditory and other sense stimuli. All of these are responses to environment for the satisfaction of the fundamental things of life, as attack and defense and satisfaction of hunger and thirst, and such stimuli are fundamental, automatic, mechanistic phenomena, and are quite independent of high level—voluntary control.

This paper of Dr. Walter is a clear exposition of the complete dissociation of the voluntary, the reflex and the nuclear areas controlling the ocular muscles. The recognition of this dissociation simplifies diagnosis and the treatment of heterophorias and sthenic conditions. The high or voluntary level, or the will of the man, can be studied from his personality. Whether he be aggressive or apathetic in character is important to know and must be remembered in the consideration of environment and conditions imposing on the intensely specialized reflex control or mid level control, which is entirely independent of the voluntary control and purely automatic in character. An aggressive man and apathetic man placed in the same environment, would be affected differently since the aggressive man has a normal or over nerve tonus sufficient to ignore and eliminate what I termed in my former paper as "irrelevant impressions" of the special senses. The man who can and does mentally ignore the constant multiple photography of hundreds of images, which only annoy, being ruthlessly transmitted to an already exhausted center, escapes the psychical tax imposed on the mid level centers of an apathetic man, who receives and makes note of tiresome expressions which only annoy and irritate.

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[3] Willett's "Analytical Description of the Eye as an End Organ," Pennsylvania Medical Journal, Vol. XII, 622.

Fusion of images take place normally and without stress, but constant repetition of the same images cause exhaustion of the retinal reflex arc, which in turn affects the control coordination and the patient is then unable to overcome any imbalance at all, with a resultant heterophoria. These levels, though independent and individual in action, are correlated and harmonious as a whole. Any stress on any one segment of this delicately adjusted and intricate apparatus, whether it be anatomic, neural, automatic, or ganglionic in character, is made plainly apparent to the ophthalmologist by signs (heterophoria) or symptoms (headache and other reflex phenomena).

We must classify our patient as well as his heterophoria. The correction of the ametropia by lenses and heterophoria by prisms will not avail if the exhaustion is cerebropsychic in character. If the cerebropsychic exhaustion is not due to a toxemia from biochemical catabolic products, it must be due to irrelevant impression, principally retinal, and environment, isolation and elimination of these irrelevant impressions must be considered. I believe that that psychical tax from irrelevant impressions of the special senses, is a factor which must be removed in toto for complete success in our treatment of heterophorias in sthenic persons between the age of 40 and 50 years, the climacteric period in women and the age in man where a demanding business environment has ever increasing responsibilities. I believe this because it is "an accepted fact that the visual purple is increased in the dark or when the eyes are closed and it is an accepted fact that in neurasthenia all the senses are exaggerated or hyperesthetic, especially so the sense of sight. Impressions of the retina being more vivid and the after images more lasting. In a condition of this kind a normal production of the visual purple is not sufficient to meet the requirement and the ganglionic layer of the retina is in a measure unprotected. We have here the terminal end of the optic nerve, the retina, receiving impressions, many irrelevant, and transmitting them in hyperacute detail to an exhausted center, which is unable to take care of normal impressions, much less hypersensitized ones. With all the senses hyperacute, exacting an excess supply of energy from centers subnormal in production, automaton functionating organs must necessarily suffer and become dormant and toxins formerly eliminated become intermingled and absorbed, producing vague, indefinite reflex phenomena, which the alarmed patient cannot understand and conceals. It is not logical, advisable and well within the province of the ophthalmologist, as a physician, to isolate these patients in a dark room for one week under a cycloplegic?

By such action, not only retinal impressions but impressions of all the special senses are cut off. Centers are relieved of drain, and automaton organs again receive a normal nerve supply, establishing the natural equilibrium necessary for normal function. By this method heterophorias, other than absolute (Risley[4]), will in many instances disappear before the correction of the ametropia. In any ametropia, complicated with a phoria or tropia, the images are not well defined and, because of this, the patient does not put on all accommodative efforts to fuse images. But the immediate result of the correction of the ametropia, is the accentuation of vision. The image of each eye becomes instantly well defined and the patient with already exhausted centers, puts on excess mid level efforts to fuse what are now vivid, well-defined, annoying images. It seems to me that the ophthalmologist's work is not complete unless the heterophoria is corrected temporarily by a properly applied prism. Personally I look on all heterophoria, other than anatomic and pathologic, as functional. Paralysis of the ocular muscles is a truly pathologic anatomic lesion in some point of the nerve tract, easily located. The term paresis, meaning a partial-paralysis, it seems to me is misleading since it would only apply to an incipient pathologic lesion, which must increase with the advancement of the lesion. It certainly can in no way apply to a phoria, dependent on a muscle which is normal but too lazy to respond to a diminished impulse, which an exhausted center, or ganglion, or nucleus, is transmitting to it through a perfectly normal nerve. Most heterophorias do not increase progressively, so why term these muscles paralytic or paretic?

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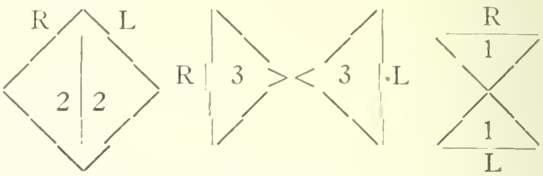
[4] Risley's "Neuroses and Other Conditions Occasioned by Errors of Refraction and Imbalance of the Extra-Ocular Muscles (Posey and Spiller).

Now whether prisms base in "tend to produce convergence-insufficiency and prisms base out convergence-excess" so that in both cases they ultimately increase the deviation they are designed to correct, is a question. Do they do this? I have had patients in whom the deviation became less, and I had to diminish the strength of the prism. I have had more in which the deviation remained stationary for years, and I have had those in which, shortly after wearing prisms, the deviation increased. But to my mind, this additional deviation was there all the time, as a latent insufficiency, and if we have latent insufficiency of the ocular muscles, is it not just as important to know the amount which is latent as it is to know the amount of latent hyperopia? A cycloplegic reveals the amount of latent hyperopia and if we prescribe a prism and the deviation increases, the amount revealed is in my opinion a *latent* insufficiency rather than an *increased* insufficiency, due to the prism, as claimed by writers. The deviation on the second correction generally remains stationary, which would also indicate that the second deviation was latent.

Chromatic aberration and astigmatism of prisms is confined to the higher degree and need not be considered in the correction of heterophoria. I cannot agree with the authorities who advocate the use of prisms at home. My experience has been that, regardless of any instruction given, the patient and ofttimes the whole family, proceed to experiment with the displacement of images, in not one, but all meridians and the benefit the patient derives which, I admit occurs in some instances, is, in my opinion, due to the confusion of centers from the indiscriminate placement of the prism rather than to the strengthening of the muscle for which it was intended. Prism exercise of a weak ocular muscle, convalescing from a paralysis of a specific nature, and some instances of muscle degeneracy is to my mind the only abnormal condition of the ocular muscles to which prism exercise is applicable.

The method of designation of low degree prisms on prescriptions should be such as to emphasize the fact to the optician that you want the prism as ordered. Some opticians seem to have opinions of their own regarding the use of prisms, and omit the low degrees. The method suggested a number of years ago by Dr. James Wallace of Philadelphia is so easy of application that it seems to me that the usual way of writing base in or base out should be further amplified by the character designating it as follows:



This repeats the degree and placement of the prism and is a note of emphasis to the optician as well.

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DISCUSSION

Dr. B. Alexander Randall, Philadelphia: This matter of divergence is one which has always interested me, partly because I have suffered from it myself. The old expression, "insufficiency of the recti interni" hardly covers many of the cases, because people can often overcome this defect and converge the eyes enormously. I easily overcome prisms base-out of almost 40 degrees, in spite of some 9 degrees of insufficiency of convergence or exophoria. Discussion of the subject has generally seemed to me needlessly complicated, for the largest element of it is very simple. There must be coordination of convergence and accommodation; a meter angle of converging for each diopter (meter lens) of focussing effect. Hypermetropia calls for accommodation to cover it, rendering it latent and giving good vision at a distance; the eyes, therefore, tend to overconverge, but generally learn to relax the convergence so as to avoid double vision. They use the region of relative convergence and accommodation defined by Donders, but they generally overdo this and tend to diverge. Most eyes are hypermetropic; in like proportion most eyes show insufficiency of convergence, at least for near, although for distance they may show distinct esophoria. Hence when we prescribe convex lenses, many find it difficult to wear their correction because we take off the accommodative strain and thereby add thus much relative divergence. We can generally make it more easy by decentering the lenses to give the needed amount of prismatic effect or can grind the prism into the correcting lens. In practice I always measure carefully the distance between the pupillary centers and record it, and in my prescription designate the exact distance I wish between the optical centers of the lenses. Each centimeter of decentering in of a 1 diopter lens gives 1 degree prism, base-in for convex, base-out for concave lenses. Yet exact measurement of the muscle balance is difficult, for it varies from day to day, even from hour to hour, exophoria being greater with fatigue, in relaxing weather and at night. So I have mounted prisms base-in ready to lend to patients so as to let them try out an approximate correction before ordering a prism; and by tonics, such as strychnin, fresh air and general exercise, rather than by prism exercise, endeavor to improve their converging power. If a prism must be ordered, Norris' rule holds good, that we should give one correcting one half of the measured defect.

Dr. Willetts (closing): Dr. Randall has brought out, in his discussion, the variation in the degree of deviation at different time of the day and from day to day. This variation of deviation is probably due to the inadequate innervation from tired centers, rather than to any faulty action of the muscle. In a condition of this kind the logical procedure is to isolate the patient in a totally dark room, under a cycloplegic, whereby not only the irrelevant impressions of sight, but the irrelevant impresions from all the special senses are effectually cut off, and exhausted centers are no longer compelled to register multiple irrelevant impressions, through the automatic level, which is effectually put out of commission.

Many times heterophorias are indicative of a general incipient psychasthenia. In such cases the treatment above described is of great benefit.

THE USE OF ETHYLHYDROCUPREIN IN DISEASES OF THE EYE*

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Any agent which promises aid in the treatment of pneumococcal inflammations of the eye is especially worthy of a thorough trial. Such an agent is ethylhydrocuprein. It is, therefore, incumbent on those who have used this drug to make known their results. This is the main object of this article. In order to assist us in reaching a conclusion as to how far the claims made for it by its earlier investigators are justified, a review of the literature of the subject is embodied in the paper.

The drug, which was introduced in 1911 by Zimmer and Company, Frankfort, under the name of optochin hydrochlorid, is a derivative of quinin. It is supplied in two forms, a hydrochlorid for aqueous solutions and the base for use in the form of an ointment.

Laboratory Investigation.—The early laboratory investigations of Gebb showed that when a loop of pneumococcus culture was mixed with three or four drops of serum boullion and a drop of a 2 per cent. solution of optochin was added the pneumococci were killed in one minute. A 1 per cent. solution took five minutes, and a ½ per cent. solution was ineffectual. In no strength did the drug have appreciable effect in inhibiting the growth of the staphylococcus or the xerosis bacillus. It had an inhibiting effect on the diplobacillus. Ginsberg and Kauffmann found that, when the eyes of a rabbit were injected with blood seru mand bouillon culture from a nasal cavity infected with pneumococci and the one eye not treated with optochin kept as a control, the one treated was almost invariably saved, the other lost.

Morgenroth and Ginsberg found that the base in a 4 per cent. olive oil produced complete anesthesia of the cornea after one minute, lasting four or five days, with some anesthesia persisting for eight days. The cornea became cloudy under its action. It caused very sharp burning which gradually disappeared in twenty minutes. Conjunctival hyperemia persisted one hour. They further determined that a 2 per cent. solution never produces lasting disturbance of the tissue. Puscarin found it painless in her employment of it in children. The author has found that, used in 1 and 2 per cent. strength, it usually produces very sharp pain. Gradle states that it has no penetrating power; but Ginsburg and Kauffmann have experimentally killed virulent pneumococci placed between the lamella of the cornea by a subconjunctival injection of a 0.5 per cent. solution, and Morgenroth claims that the deep corneal anesthesia which results is evidence of its penetrating powers.

Cavera found that it had a selective bactericidal action on the pneumococcus in vitro, far superior to any antiseptic in use in ophthalmology. He noted that the repeated instillation of a 1 per cent. solution produced slight dilatation of the pupil. There was no increase in tension, rather a tendency to lessened tension.

Clinical Uses.—Stengele has classified its ocular uses as follows: (1) Ocular diseases produced by the pneumococcus; (2) diseases of the tear sac; (3) ocular diseases in which optochin has a special action in regards to photophobia. To these may be added: (4) ocular diseases due to other organisms or other causes, such as gonococcal conjunctivitis, streptococcic conjunctivitis, vernal conjunctivitis and trachoma.

Interest in its therapeutic value centers about its efficiency in pneumococcal infections, especially of the cornea. Goldschmidt, who was one of the first to experiment with it clinically, concluded from his experience that the drug has a far-reaching curative effect in pneumococcal infections in the human eye. He found that its action was specific, i. e., that it does not affect staphylococci, diplobacilli, etc. He suggested that it might be of use as a prophylactic in corneal injuries and preliminary to intraocular operations where the presence of the pneumococcus is known or suspected. Kraupa suggests that workmen might use it every second day as a prophylactic measure. Schur records his results in thirty-five unselected cases of pneumococcal ulcer of the cornea. Thirty recovered under optochin treatment alone. In five cases, all advanced when they were subjected to optochin, complications such as perforation, hypopyon, etc., occurred.

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* Read before the Section on Eye, Ear, Nose and Throat Diseases of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 20, 1916.

Kümmell reports a cure in every one of his seventeen cases. The duration of the stay in the hospital ranged from seven to fourteen days, with an average of twenty days. In only one case (advanced) did perforation occur. Cavara treated fifty-five corneal ulcers of pneumococcic origin and finds that it has marked beneficial effect. Superficial progress of the ulceration never occurs. The deeper infections sometimes progress to perforation but this is no contraindication to its further use as the iris tolerates it well. The resulting scar is usually smaller than the original ulcer. Comparison of results with those obtained with the cautery is greatly in favor of optochin.

Schwartzkopff gives the results obtained at the university eye clinic at Berlin where all pneumococcal ulcers have been treated with optochin since 1913. The average stay in the hospital was fifteen days. At the time of discharge 18 per cent. had V.= 0.5 to 1; 30 per cent., .25 to 1; 30 per cent. fingers at 1 to 3 M.; 22 per cent. had light perception hand movements. Two eyes were enucleated. Twenty-seven cases were treated. Hoth employed optochin in two cases. In one case the ulcer was clean and covered with epithelium in ten days' time. The second got well in a few days. Lundsgaard, Lingren, Mühsam, Paderstein, Wertheim and Meissner all report excellent results.

In the case reported by Hansell the result was striking. A pneumococcic ulcer covered the outer third and involved half of the layers of the cornea. In twenty-four hours the ulceration was checked and in twenty-four hours more the eye was practically well. Leber details the effects noted on ulcers treated with optochin. He found that in most cases there was a rapid cleansing of the floor of the ulcer, and in the absence of latent infection of the sac, the organisms disappeared so rapidly that after one day they were not culturally demonstrable in the conjunctival sac. In a majority of the cases the cleansing of the floor of the ulcer was followed by a long persistence of the marginal infiltrate and the deposit on Descemet's membrane. The hypopyon disappeared slowly. In a small proportion of the cases there was an initial arrest of the process with later exacerbation which was not amenable to the drug. This he explains by the resistance on the part of the bacteria to the toxic effect of the drug. Ramsay found that pneumococcic ulcers treated with optochin ran a shorter and a conspicuously more favorable course than did those dealt with in earlier days by the well recognized methods formerly in use. Solowejeff, Gradle, Darier also report favorably as to its use in pneumococcus ulcer of the cornea. The author has treated eight cases which will be detailed later.

Oliver has seen no special advantage in its use and states that cases have been reported in which the instillation of a 1 per cent. solution caused rapid destruction of the cornea. While this is the one discordant note in the literature, the author has found in conversation with surgeons of large clinical experience, in various parts of the country, that their results have not been strikingly good.

Pneumococcus Conjunctivitis.—The author has employed optochin in three cases. In one the inflammation was of less than twenty-four hours' duration, and one instillation of the drug brought about a cure. The second case was one of pneumococcal conjunctivitis in a patient admitted to the hospital for cataract operation. On the fourth day of treatment the organism had disappeared. On the seventh day the cataract was extracted. Healing was without incident. In the third case the process had been going on for two weeks. At first considerable improvement was noted but a relapse occurred and five months later the eye was still inflamed and other organisms were present in the secretion. Risley gives the notes of an interesting case exhibiting the same apparent cause for failure to cure. An 8-year-old child had lost both eyes from an inflammation occurring during an attack of pneumonia. When seen by Dr. Risley the eye-lids were swollen, the tarsal conjunctiva covered with redundant granulations with granulation masses projecting through the ruptured cornea. Laboratory report revealed an abundant pneumococcic infection with a few streptococci. Under the use of a 2 per cent. optochin solution improvement was rapid and marked, then ceased, and the eyes became worse. A second bacteriological examination then showed complete absence of pneumococci and the presence of a virulent streptococcic infection. Gradle considers it a specific in this form of conjunctivitis.

Dacryocystitis.—Stengele considers optochin of great value in this condition especially when complicated with corneal ulcer. Wiener saw healing of a hypopyon ulcer in the presence of a purulent dacryocystitis occur in a few days with a cessation of the discharge in eight hours. Gradle, Posey, Goldsmith, Stengele and the author all report cases in which the discharge in dacryocystitis was abated. Ring found the drug exceedingly prompt in temporarily clearing up the superficial conditions in chronic pneumococcic dacryocystitis. It had, however, to be withdrawn because of the pain experienced.

Gonococcal Conjunctivitis.—Puscarin treated eight cases of gonococcal conjunctivitis with optochin. She concludes that this method of treatment produces a rapid cure in recent and receding cases, while in cases in which the disease is at its height (up to fourteen days) treatment must be continued longer in order to get rid of all the gonococci. Wyler employed it in two cases. The first case did well at first. On the seventh day the baby could open its eyes and they remained free from pus for two hours at a time. Later there was a severe exacerbation of the conjunctivitis with perforation of the cornea. Although the organisms found were Gram negative the reporter expresses a doubt as to their being gonococci. The Credé method had been used at the birth of the child. The second case was improving under optochin but soon passed from under Wyler's care.

Streptococcic Conjunctivitis.—The evidence concerning the value of optochin in this form of conjunctivitis is limited to the case reported by Crisp. The patient was a man 73 years of age. There was a free purulent discharge which nitrate of silver and other agents failed to check. A rapid recovery followed the use of optochin.

Vernal Conjunctivitis.—Wyler employed the drug in two cases of mild vernal conjunctivitis with the result of markedly ameliorating the characteristic annoying itching of this affection.

Trachoma.—Wyler claims to have derived benefit from its use in trachoma.

Blepharospasm and Photophobia.—Because of the persistence of the corneal and conjunctival anesthesia over several days Peterka employed it in the blepharospasm of phlyctenular disease. He found that it relieved both the spasm and the photophobia. Stengele, Grunert and Wyler also report remarkable good effects on these symptoms in this disease. The two latter both noted that it failed in insterstitial keratitis. Stengele believes the benefit to be due, not to the anesthesia, but to the bacterial action of the drug.

Method of Using.—As previously stated the drug is supplied in its basic form and as a hydrochlorid. The latter is soluble in distilled water up to 5 per cent. strength. Clinically, the hydrochlorid has usually been employed, in 1 and 2 per cent. strengths. The method which appears to give the best results in the treatment of corneal ulcers is that proposed by Kümmell. A 2 per cent. solution is applied by means of a small cotton pledget daily to the ulcer and a 1 per cent. solution is instilled hourly into the conjunctival sac. Schwartzkopff used to advantage a salve of optochin HCl, 0.1; atropin, 0.1; amyl, 2; vaseline, 10; every two hours.

For the relief of blepharospasm and photophobia a 5 per cent. solution is instilled and repeated, if necessary, every two days.

As the drug is, in all strengths, painful it would seem advisable to precede the use of the stronger solutions with a local anesthetic.

Crisp in treating his case of streptococcic conjunctivitis rubbed into the conjunctiva of the lids a 1 : 180 solution.

In the treatment of gonococcal conjunctivitis Puscarin advises, where there is profuse secretion and severe inflammatory symptoms, the hourly instillation of a 1 per cent. solution, previously washing off all secretion with boric acid. Ten to fourteen instillations are made in twenty-four hours. When the secretion stops and the infant is able to open its eyes a 2 per cent. solution is to be used every two hours, preceded by a flushing of the conjunctival sac. The solution must reach the whole surface, to this end, the eyelids must be turned and the conjunctiva exposed one minute to the fluid.

Precautions.—In view of the fact that Oliver claims that cases have been reported in which instillation of a 1 per cent. solution produced rapid destruction of the cornea and that the unfavorable result in Wylie's one case might possibly have this explanation, it is deemed wise to emphasize that the drug should be used with extreme caution and that other methods known to aid in the treatment of the condition under observation should be used in conjunction. The toxicity of the drug should be borne in mind when injecting the solution into the lacrimal passages.

Conclusions.—Ethylhydrocuprein (optochin) is a valuable aid in the treatment of pneumococcal infections of the eye. It often acts as a specific in pneumococcal ulcers of the cornea, especially if the treatment is begun before active tissue destruction has occurred. Almost all cases of this type of corneal ulceration under the action of this drug (to use the words of Ramsay) run a "shorter and conspicuously more favorable course than did those dealt with in earlier days by the well-recognized methods formerly in use." The evidence at hand as to its value in diseases of the cornea and conjunctiva due to other organisms than the pneumococcus or to other causes, is insufficient on which to base a conclusion.

The following is a synopsis of the author's cases of pneumococcus ulcer of the cornea treated at Wills Hospital with optochin:

Case 1.—Admitted three days after being struck in eye by a piece of rock. Large sloughing ulcer with hypopyon. Ulcer cauterized on admission. Ethylhydrocuprein first used on third day. On fifth day a Saemisch was done. On the seventeenth day the ulcer was clean and a roller bandage was ordered. Discharged on thirty-seventh day.

Case 2.—Admitted two weeks after injury of the eye with a blade of grass. Pneumococcic ulcer with hypopyon. Optochin from first day. On eighth day slight increase of infiltration. On the fourteenth day cauterized with trichloracetic acid. Discharged one month from admission with ulcer healed.

Case 3.—Admitted one week after beginning of inflammation. No history of trauma. Had similar trouble one year ago. Got well without treatment. (Patient's statement.) Pneumococcic ulcer with hypopyon. Optochin first used on second day. On fifth day hypopyon absorbed. On eighth day ulcer clear. Discharged on twentieth day, ulcer healed, vision equalled 8/30.

Case 4.—Admitted nine days after coal injury. Large pneumococcic ulcer with hypopyon. Dacryocystitis. Optochin from first day. On sixth day ulcer cauterized, with trichloracetic acid. Optochin stopped one week. On twenty-first day paracentesis performed. On the thirty-third day descemetocele. Discharged on forty-fifth day. Eye quiet. Cornea flat.

Case 5.—Admitted three months after inflammation began. No history of trauma. Lower half of cornea involved in ulcer. Hypopyon T. + 1. Optochin used from start. Second day ulcer cauterized. On fifth day ulcer perforated. Discharged on ninth day. Ulcer healing.

Case 6.—Admitted on twenty-sixth day after coal injury. Small pneumococcic ulcer with hypopyon. Optochin from start. Discharged on seventh day; ulcer healed.

Case 7.—Admitted sixteen days after injury by piece of iron. Treated by an oculist until time of admission. Large pneumococcic ulcer involving middle two-thirds of cornea; deep hypopyon. Cicatricial ectropion of both lids from burn of face in childhood. On twenty-third day actual cautery applied to ulcer and base perforated. Optochin from start. Discharged at the end of six weeks with adherent cicatrix. Clear corneal tissue above.

Case 8.—Admitted three weeks after injury by coal. Incipient panophthalmitis. Ulceration extended to Descemet's membrane. Smear negative. Optochin from start. On sixth day ulcer margins lightly touched with carbolic acid. Thirteenth day eye much more quiet. T. + 1. Discharged on eighteenth day, cornea flat. Vision equaled hand movements.

DISCUSSION

Dr. Burton Chance, Philadelphia: The effects of pneumococcal infection are so disastrous that the discovery of any substance capable of destroying the infecting material and at the same time maintain the nutrition of the eyeball, is of the greatest importance and value, because, hitherto, treatment has been almost unavailing, either to save the globes from total destruction or, at best, to prevent the formation of great obstructing scars. Therefore Dr. Zentmayer does a great service in bringing before us an account of the experience of others in the use of ethylhydrocuprein, and to supplement their experience by that from his own practice and the results which he has obtained in the employment of this special remedy. From him we have learned that the ulcerous processes became limited by the use of optochin; that the average time of healing was reduced to about two weeks; that in but few cases were the globes totally destroyed; and that the reparative powers became increased so that the resulting scars were not so dense nor so extensive as what have followed when other methods were employed.

It will be seen, however, that the drug cannot be depended on for infective processes not caused by the pneumococcus, and hence it, solely, should not be used in purulent conjunctivitis. A singular clinical note has been observed in the apparent recrudescence after partial healing following on its use. It may be that this reaction was brought about by the effects of virulent organisms other than the pneumococcus, and therefore it would be well to use bichlorid of mercury and other antiseptic solutions in order to counteract the effects of other organisms. Moreover we should bear strongly in mind that ethylhydrocuprein, optochin, is a preparation of quinin and that it is intended to be applied in a rather concentrated form to extensive mucous surfaces; accordingly, we should remember that it is quite possible that an undue absorption of the drug can follow in susceptible persons and lead to more or less destruction of the retinal cells and consequent amaurosis. Indeed, such an accident happened in a case of pneumonia, as was reported by Feilchenfeld.

In advocating the use of optochin which, as we have already seen, is a preparation of quinin, and by reason of the lack of imported drugs caused by the war troubles, it is of interest to note that for many years clinicians have used the muriate of quinin in ulcerous conditions of the cornea. In this connection, I would speak of the practice of Dr. Frank Fisher, especially in his many years' service at the Wills Hospital, where I have had numerous opportunities to see the good results which he obtained in the use of 4 per cent. solutions, freely and frequently applied, together with insufflations of iodoform. He used it in serpiginous ulcers and in perforations accompanied by inflammation of the deeper structures.

I have not used ethylhydrocuprein; my knowledge of its value is based on the results obtained by Dr. Zentmayer, certain of whose cases I have seen from time to time. While I advocate the use of this remedy, I believe it possesses but little advantage over other methods unless it is used at the earliest possible moment and is applied intensively in the first few days.

Dr. Stanley S. Smith, Pittsburgh: I have for some time been in the habit of using ethylhydrocuprein in the cases of corneal ulcer in which I obtained a smear showing the presence of the pneumococcus. I use a small pledget of cotton on a probe, and make considerable pressure against the ulcer for one minute, by the watch and not by guess. I have found a great deal of benefit ensue from using the drug in this manner. We had much difficulty in obtaining it for a while, but get it now; and I use it quite frequently in our hospital.

Dr. Zentmayer, closing: In my cases the results were certainly better than those that I had formerly obtained by other methods of treatment. Out of eight cases of corneal pneumococcic infections I had two perforations; but they healed rapidly and the result was only an adherent cicatrix, and not a large leukoma. One of the cases in which this occurred was quite far advanced, as are the majority of those that we get at the Wills Hospital, many coming from up in the state, so that there has been a delay in treatment and the ulcer had reached a stage where hypopyon was present and there was involvement of the deeper structures. It is hardly to be expected, therefore, that even a specific can overcome the infection in such cases. Moreover, some strains of pneumococci are much more virulent than others, and it is possible that some of the observers who have not had good results from this method of treatment have had one of the more virulent forms of pneumococci to deal with. They have failed in these instances, and have therefore given up the use of this remedy. I hardly know of a drug introduced into ophthalmic practice that has been more favorably received than this, except, possibly, dionin, which has constituted a great addition to our armamentarium. I am glad to hear that ethylhydrocuprein is again on the market. It is a drug that should claim attention.

Dr. C. M. Harris, Johnstown: Have you any information concerning its use in intra-ocular infections?

Dr. Zentmayer: None, except that the continued use of ethylhydrocuprein, after perforation has occurred, in no way injuriously affects the lens or the iris.

The papers do say,
I read it
THIS NOON,
A fly swatted now
Saves 9,000,000
IN JUNE.

Perhaps that is true
And it may be
NO LIE
That a fly swatted now
Will save 9,000,000,000
IN JULY.

Flies carry the germs
And they carry
BACILLI.
The best thing to do
Is to just
KNOCK 'EM SILLY.

But I cannot find one.
If I don't
PRETTY SOON,
How will I save
My 9,000,000
IN JUNE?

—Philadelphia *Press*.

SYMPTOMS OF EMPYEMA OF THE MAXILLARY SINUS; A SIMPLE OPERATIVE METHOD FOR ITS RELIEF *

JOHN J. SULLIVAN, Jr., M.D.
SCRANTON

For several years I have been making a routine examination of my sinus cases. A sinusitis cannot be diagnosed by merely looking up the nose and finding pus, or said to be absent when the pus is not found. The easier the diagnosis, the harder the cure. Time well spent in clearing up the simple, more obscure conditions, will be the best means for the prevention of the more chronic lesions. It takes more than one examination to prove that sinuses are healthy or the reverse.

ROUTINE PRACTICED IN EVERY CASE

1. Examine the nose before and after contraction (cocain and adrenalin).

2. Syringe the nose with normal salt solution, collecting the return fluid in a black pus basin. If pus has been present, look for its reappearance.

3. Transillumination with my frontal sinus and antrum light.

4. Roentgen ray and compare with transillumination markings of the sinus. The sinus is marked off in the dark room and the results compared with the plate. In transilluminating the sinus start low on the rheostat and gradually increase the light. This conserves the life of the lamp and at the same time gives a better idea of the part examined.

5. Position (Escat), head down, side examined uppermost. I have seen this give pus also from the opposite or lower maxillary sinus where it was filled to overflowing. (*a*) Head upward, erect and erect slightly backward for the frontal sinus; (*b*) head forward on the chest for the sphenoid; (*c*) anterior ethmoids will sometimes give pus in the sphenoid position; (*d*) posterior ethmoids, head skyward in the prone position. These positions help a great deal.

6. Puncture and irrigation of the maxillary sinus under the inferior concha I do in all suspected cases of sinus disease and in all cases of involvement of the other sinuses. After the puncture I pass a probe through the puncture opening and examine for thickened membrane, etc.

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* Read before the Section on Eye, Ear, Nose and Throat Diseases of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 19, 1916.

7. To examine the ethmoid and frontal sinuses, cocainize and adrenalinize the middle concha, the septum opposite to it, the external wall of the ethmoid as much as possible. Infract the concha with a blunt elevator or Killian long spatula. Examine for thickened membrane with a probe. Note the general appearance of the cells. Trace pus if present. Probe frontal sinus gently and wash out if there is any suspicion of disease.

8. Unless symptoms are very apparent, it is very difficult to make a diagnosis in disease of the sphenoidal sinus and posterior ethmoids, and then only after removal of the middle concha. Again the probe should be the factor in trying to locate the sinus (sphenoid) opening. It is impossible at times to differentiate between disease of the posterior cells and the sphenoid. Given a suspected case it is always due to lack of drainage. The concha or deflected septum is at fault. I think it is good surgery to remove at least the obstruction. Then the sinus can be more easily examined. The Killian long speculum is a help to the examination in this region.

9. Suction should be used for all sinuses.

We should not put too much confidence in any one clinical sign. It is the group of findings that complete the picture. One word about the Roentgen ray: I have seen the plate show a clear, healthy, dark sinus, and on operation have found a sinus filled with polypoid masses. Again, a plate may show trouble in the frontal sinus where there is little or no disease. It is well to have several plates made in doubtful cases.

Symptoms referable to patient and differential diagnosis can be found in any textbook. The patient may have pain anywhere in closed empyema or a vacuum pressure. Often the pain simulates frontal sinusitis; less often, sphenoidal trouble. Dripping in the throat, chronic coughs and laryngitis are frequently due to maxillary pus. Transillumination and the Roentgen ray are an aid to diagnosis. In every case wash out three weeks or more previous to operation.

After puncture it is the general rule to blow air into the sinus. No squeak means no pus, or vice versa. In a closed sinusitis (maxillary) it sometimes requires great force to get even a few drops of the irrigating material away. In these cases the blowing of air into the sinus is of no value. The passing of a probe into the sinus shows only slight thickening of the lining. It is not filled with pathologic tissue, so that cannot account for the force required. Your cannula is not blocked. We then look to the normal ostium as the site of our trouble. If you cannot reach the normal opening, puncture above the inferior concha, 4 mm. above and about 20 mm. back of the anterior end. I use the small-sized frontal sinus rasp, gradually enlarging the opening with different sizes, biting away loose tissues with the ethmoid forceps. This gives an opening through which I can irrigate if I find it necessary. Several cases which had pus in sinus gave no squeak; this was due to pus being very thick, that, after washing, came away in one piece.

STEPS IN THE OPERATION ON THE ANTRUM OF HIGHMORE

1. Cocainize the inferior concha under and above it, and also the septum opposite, using the Freer method, followed by 1 : 5,000 adrenalin solution.

2. Infract thoroughly the inferior concha upwards; this gives an excellent view of the lateral wall under the inferior concha, using a special speculum or Luc ethmoid forceps.

3. Retaining the speculum, if desired, the entire naso-antral wall can be removed; everything is within sight of the operator.

4. Remove the wall, using a Whiting No. 2 or 3, long mastoid curet, a Gleason rasp, small chisel or trephine.

5. Entrance with the curet should be about the middle and at the point of attachment of the bone with the lateral wall.

6. The floor of the sinus is lowered to that of the nose.

7. All fragments of bone and mucous membrane are removed by suitable forceps. A flap of mucous membrane can easily be loosened if the operator thinks best. Personally, I never take the time to do so. It prolongs the operation and is unnecessary.

8. Wounding the nasal duct anteriorly is avoided by keeping below the attachment of the inferior concha. Avoid the descending palatine canal posteriorly by not cutting into dense bone at the posterior limits of the sinus. One inch anteroposterior is a fairly large opening and I can usually obtain it.

9. Pack with gauze, either iodoform or bismuth. Remove within twenty-four hours and the sinus is then painted with 50 per cent. argyrol.

10. Occasionlly I rasp away the bone in front and below the attachment of the inferior concha. This allows easier passage of the irrigation tube. I do not favor continual washing of any cavity. Once a week is enough, even in an acute case,

providing there are no symptoms of pus retention (pain, chills, etc.).

Nearly all remains open when thoroughly done. This is left to the judgment of the operator. It would border on the extreme radical to make a permanent opening in an acute case. It is always the height of folly to expect an old chronic case to improve after a small opening. In the latter cases a recurrence may always be expected following a cold in the head. In the past six years I have operated on about 150 cases.

CASE REPORTS

Case 1.—Female patient, aged 45, had what looked to be a typical neuralgic tic on the right side, involving the middle and inferior branch of the fifth nerve; touching the face brought on a typical attack. On examination the right maxillary sinus was found diseased, containing pus and polypoid hyperplasia. Pain disappeared on operation; duration three years.

Case 2.—Female patient, aged 34, for four years complained of postnasal dripping. She was examined repeatedly. I could find no pus in nose or epipharynx. Pus was found in both maxillary sinuses and the left sphenoid.

Case 3.—Male patient, aged 27, had neuralgia eight years. Pain was continuous over eyes, temporal and occipital region. He had had several pairs of glasses which afforded but slight relief. Transillumination showed both frontals large and clear, both maxillaries dark. No pus was seen in the nose in the routine positions. Suction was negative. Roentgen ray showed frontals large and apparently clear; maxillaries negative. Infraction of the middle concha revealed double hyperplastic ethmoiditis present. Ethmoids were exenterated. Pain was relieved over the entire right side; also over left, excepting over the frontal, where it was more intense. Washing out sinus two weeks later still gave pus; probing found thickened membrane. (I had made a large opening into the sinus; about a 6-mm. catheter could be passed.) Pain was relieved by washing. Patient lived at a distance and could see me only about once a week. In a week's time he came back with pain very severe. Washing gave no results; I could easily get a large-sized tube into the sinus, but solution would not come away even under great pressure. After one week in hospital under observation, typical Killian operation was performed. Sinus was found filled with polypoid tissue and a slight amount of pus. Patient was worse after operation; pain, severe; neck, stiff; diplopia to side of operation. Nothing seemed to relieve the pain. There was no photophobia, Kernig or Babinski sign. It seemed like the grand storm before relief. Although the Roentgen ray had given a clear antrum I punctured and found pus on left. The probe found thickened mucous membrane. We were dealing with a typical neuralgia habit in a neurasthenic. So I did not see the necessity of fooling. A typical Denker found the above diagnosis correct. Diplopia disappeared two days after the Killian operation. This is over three years ago and he has had no pain on the left side since. He complained of occasional pain on the right and says if it gets worse he will have it opened. On looking over the plate since operation, especially after the operative findings on the left, I am of the belief that the right side has more or less trouble there.

Case 4.—Female patient, aged 25, had pain in back of head, in eyes, and dizziness; nasal blockage. Examination showed mucous membrane swollen; contracted under cocain and adrenalin. Transillumination showed large frontals, maxillary light. Escat position showed pus. On puncture and washing I found pus. Probe found thickened mucous membrane.

Case 5.—Male patient, aged 32, had cough for four years. Examination showed enlarged sublingual tonsils; also right maxillary sinus diseased. Cauterization of the sublingual tonsil and washing of sinus gave relief.

Case 6.—Female patient, aged 36, had local symptoms. She had had a cold in head for over four months; headache vague and annoying. Transillumination showed large clear frontals, maxillary negative. Routine examination of the sinuses gave diseased right maxillary and sphenoid sinuses.

I want to place on record the following: The frontal sinus can be entered, even the opening enlarged, without removal of the middle concha. Even the whole anterior ethmoid groups and a good part of the posterior can be removed without removal of the middle concha. Skillern of Philadelphia noted the first about the same time that I was carrying on the foregoing procedure.

Traders Bank Building.

DISCUSSION

Dr. George M. Coates, Philadelphia: I think that some of the points that Dr. Sullivan has brought out should be emphasized. One in particular is that we can have extensive involvement of the maxillary sinus without symptoms pointing to it. We may have no headache at all with overflowing maxillary sinuses. The Roentgen ray and transillumination cannot be relied on absolutely. In the last case that Dr. Sullivan reported, in which he had negative findings with both these, he yet found pus in the sinuses; and this is a condition we find now and then. The only sure way in which to know whether the sinus is involved is to puncture with a small Lichtwitz needle, wash it out, and see. The nose must be washed out first, using a black pus basin, to see what is in the nose. Then, if we get anything after puncturing the antrum we know where it comes from. It is a very simple procedure, and the patients do not mind it. We gain definite information from it.

To open the sinus intranasally, I have used Dr. Sullivan's frontal sinus rasp satisfactorily. By using any sharp instrument we like under the turbinate to open the antrum, we can rasp as much as we need to. We cannot rasp backward; but we can get a beautiful opening forward, and usually all the space required for cleaning out the sinus where the pathological changes are not too great. In an old sinus, full of polyps, we cannot cure the condition in that way, however, and will probably have to do a radical operation.

Dr. Frederic P. Hollister, Scranton: I have been associated with Dr. Sullivan very much in his hospital work, and I simply want to agree in what he has said and to emphasize the point of routine examination. To appreciate fully how much Dr. Sullivan's method of procedure simplifies the operation, makes it safer, and still leaves the nose intact, one should see him do the work.

Dr. Ross H. Skillern, Philadelphia: I have heard a great deal about Dr. Sullivan's good work indirectly, recently, and am very glad to have heard his talk today. It certainly warmed the cockles of my heart to hear him speak of needle puncture of the maxillary sinus. It is something that I have been speaking of for ten or more years—putting a needle in, as a diagnostic measure, and washing out the sinus. Ten years ago, a man who had come to watch me do this said, "You had better stop that, or you will get into trouble; I think you are going a little too strong in sticking a needle in every case you see." I did not stop, and have never regretted it; because I have never seen any untoward effect follow needle puncture when properly carried out.

There have been a number of such cases reported from time to time, mostly by foreign surgeons. For instance, there have been one or two cases of apoplexy, and one or two of embolism, one in the lung, and another possibly in the brain. One American case was reported some time ago, a case of syncope and sudden death, presumably from heart failure; and a friend of mine in Vienna told me that epilepsy had followed this procedure. In other words, a fit was brought on. But I have never seen trouble follow needle puncture of the maxillary sinus under the inferior turbinate. Sometimes, in doing it, we encounter some curious things. I once put a needle in, and was sure that there was pus, but could not force a particle of air in. Experience had shown me that I might have gone through the mucosa of one side into the swollen mucosa of the other, or that my needle might have got a spicule of bone in it, or that the middle turbinate might have been crushed over the ostium. On looking into the nose, I found the middle turbinate normal; I cleared out the needle, then I tried suction, and got air, but I could not force any in. There seemed to be some sort of air-pressure against the piston of the syringe. The case ultimately came to external operation by the Caldwell-Luc method. I looked carefully, after having washed it out, to see what the trouble was, and I found a polyp hanging over the ostium, which, when I blew, acted as a ball-and-socket valve, occluding the orifice; but if I sucked, the polyp pulled away and allowed air to escape.

Regarding the operation Dr. Sullivan spoke of, he may be surprised to hear me say that I do not agree with him regarding the removal of all the naso-antral wall, including the inferior turbinate.

Dr. Sullivan: I do not remove the inferior turbinate.

Dr. Skillern (continuing): So, then, he removes all of the wall below the inferior turbinate. That is a different proposition. We want to remove only as much of the wall as will give thorough aeration. Drainage is almost as important as complete aeration.

Dr. Frederick J. Bishop, Scranton: I want to add an expression of my appreciation of the opportunity I have of seeing Dr. Sullivan doing many of these cases, fracturing (or, rather displacing) the turbinate, and getting as much opening into the maxillary sinus as needed. In the acute cases, a small opening is correct, rather than a large.

Of course, it is the wall below the turbinate that Dr. Sullivan meant. By increasing the size of the opening we can have as much room as we want.

Dr. Ben Clark Gile, Philadelphia: I wish to corroborate Dr. Sullivan in the opinion he has just expressed that we cannot put implicit confidence in Roentgen-ray pictures of the nasal sinuses: sometimes they fail to show lesions that are undoubtedly present, even tumors of considerable size.

A man came into my office about six months ago complaining of disease of the nose. His turbinals had been removed and much other intranasal work had been done. On examination I found that the nasal wall of the antrum was resting against the septum, which of course seemed strange after so many intranasal operations. I made the customary suggestion that a Roentgen-ray picture be taken, but the patient promptly replied: "Doctor, if you cannot make a diagnosis without that I will go somewhere else. I have already paid for twelve such pictures." I told him that a plate was not essential for diagnosis for I was already convinced that there was a tumor in the antrum and an operation was absolutely necessary. I did the Caldwell-Luc operation and removed from the antrum a large fibroid tumor. Subsequently the patient brought to me all of his twelve plates, which I examined carefully, but found nothing showing any lesion in the sinuses. I then submitted them to a couple of my friends who are experts in examining skiagraphs. They both agreed that none of the plates gave evidence that there was anything wrong with the sinuses. Here were twelve skiagraphs corroborating each other in declaring the antrum free from disease and yet in that antrum was a fibroid larger than an English walnut.

Dr. George C. Johnston, Pittsburgh: I do not feel called on to apologize for the shortcomings of so-called expert Roentgen-ray operators and their interpretations. I spend a good deal of my time apologizing for that sort of thing. It is not necessary. When we suspect a sinusitis, we should make a careful study of it to avoid the possibility of error. These errors may occur. I think, however, that the percentage of error in Roentgen-ray diagnosis in the hands of a careful man is about as small as with any other method of diagnosis, and infinitely less than with the ordinary clinical examination. The maxillary sinus region is a very easy place in which to make a mistake—so easy that we discount the possibility of a mistake in the Roentgen ray in advance. In the frontals, it is rather easier to make the examination, and the possibilities of mistake are less than in the maxillaries. The very slightest error in position, of a few degrees, so that the Roentgen ray passes through the skull at the wrong angle, will make a decided difference in the image cast by the maxillary sinus on the plate. If the shadow of the base of the skull interferes at all with the image of the maxillary sinus, it is well to make a series of plates in which this does not occur, if we want our opinion respected. If the position is the one pointed out by Dr. Caldwell of New York, there will be very few errors made in diagnosing pus in the maxillary sinus. If, in addition, a plate is made of the maxillary sinuses themselves, throwing them clear below the base of the skull, and if certain well-known laws regarding Roentgen-ray technic are followed, it is not necessary to make mistakes of that kind. If a high vacuum tube is used, and if the picture is over-developed and under-exposed, I can see how a mistake may be made, but if a patient has a maxillary condition with normal mucous membrane on one side, and on the other a fibroid tumor, I think I can differentiate that very easily.

Dr. Clarence M. Harris, Johnstown: It would be hard for anyone having a modern conception of rhinology to differ with what these gentlemen have stated. Mention has been made of diagnosing by irrigation and air. I have used both, and formerly more than now. I now depend on irrigation. I used to employ air; and once, when I was investigating the sphenoidal sinus and had not a large enough opening, I turned on the air and used more pressure than necessary. The patient was 60 years or more of age, a woman in poor health with a nervous temperament. After giving the blast of air and not getting the usual signs of pus the patient said that I was killing her, and in the ensuing few minutes it seemed to me that she was right. The pupils dilated, she was paralyzed from the waist down, there were clonic movements of the arms, and nearly everything was out of plumb and commission, except her tongue, and she used that to emphasize the fact that she was not going to stay around there very long. It looked like it. Evidently the air had found some means of communication with the central nervous system, and she was very much affected. After some anxious and watchful waiting, she partially recovered, and in less than an hour she could be removed in a carriage to her home. It is needless to say that my stock did not go up in that family or in the immediate neighborhood, and I have been very careful about using air ever since. We have to be more careful in the sphenoid sinus than in the maxillary. We hear a lot about successes, and I think it is necessary also to emphasize unsuccessful diagnoses and methods.

Dr. George W. Mackenzie, Philadelphia: I wish to mention a case, but not one of my own. While doing work with Hajek, I saw assistant Bondy attempt to introduce a curved hollow needle over the middle turbinate into the maxillary sinus in order to inject air into the sinus. The patient within ten to fifteen seconds manifested a divergent strabismus and keeled over. Some of those present thought that it was hysteria. Having had some experience with eye conditions, I was convinced that hysteria could not produce so marked a divergent strabismus. The patient survived for a day or two, and finally died; and it was found at the necropsy that there was an air embolus in the brain. This fatality was due to faulty methods. At that time (ten years ago) Killian was introducing a curved hollow needle in the region of the pars membranacea to reach the sinus, and on the strength of Killian's recommendation assistant Bondy tested it, but with unfortunate results.

Dr. Sullivan, closing with demonstration (on cast) of the operation: We had 40 chronic cases last year; 75 the year before; 50 the year before that. In a year's work we will average at least 50 to 75. A Roentgen ray is absolutely necessary as a help in a general sinus examination. This operation conserves the life of the inferior concha. One point we would like to put on record.

We are also removing the whole or a part of the ethmoid, as indicated, without removing the middle concha. I will describe the operation briefly: (1) Cocainize, Freer method, using adrenalin 1 to 2,000 solution, middle concha, the ethmoid wall beneath; Meckel's ganglion posterior, and the anterior ethmoid nerves. (2) The middle concha is infracted, using specula. We can either allow it to remain until we have broken down the uncinate process or remove it if it hinders or is in the way of the operator; the middle concha is easily pushed aside with the curet after it is infracted. (3) The uncinate is removed; then the bulla ethmoidalia, using a Moshier curet. If this is as far as we need go, that is, if we only wish to remove the anterior cells we can either drain between the external wall and the concha, or we can force it outward to fill in. In case of the complete removal we attack cells with the curet and biting forceps until the wall of the sphenoid is reached. Then pushing back into space left by the exenterated ethmoid, the sphenoid opening can be easily found; probing finds whether or not it is necessary to proceed farther; if so, the lateral extent of the sphenoid is found with the Skillern silver probe. The middle concha is then pushed against the septum and the operation carried into the sphenoid through the posterior cells, enlarging the opening to join the normal one. All shreds of tissue are cleared away and the middle concha and the ethmoid wall are forced into the space left by the ethmoid exenteration. In case the middle concha is hyperplastic it can easily be trimmed down. If necessary the opening can be enlarged into the frontal sinus.

Advantages: (1) Middle concha is left in place during the whole operation and acts as a door or guide to the operator; (2) its function is preserved and with it a very large amount of nasal mucosa that would otherwise be destroyed; (3) it can be used as a plug to fill up cavity or (4) in the case of purulent ethmoiditis it can still remain and the drainage carried on between it and the external wall. The nose is packed after the operation with paraffin gauze, which we allow to remain twenty-four hours.

In reply to Dr. Harris' question, the rasps are made by the Mueller Company of Chicago. The modified Killian speculum used in the maxillary sinus operation is made by The Physicians Supply Company of Philadelphia.

THE STATUS OF THE LINGUAL TONSIL AND ITS SURGERY *

JAMES A. BABBITT, M.D.
PHILADELPHIA

Certain fields of nasopharyngeal surgery afford opportunity for such positive and direct relief that examination in reference to them becomes instinctive, and the specialist feels a subconscious pride in his increasing records of positive service to the patient. Into such category fall the drainage of the sinuses, the submucous resection, the tonsil enucleation — clear-cut, definite surgical adjuvants with positive result.

The study of the varying conditions associated with the lingual tonsil produces the grow-

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* Read before the Section on Eye, Ear, Nose and Throat Diseases of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 19, 1916.

Penn. M.J. Athens

ing conviction that here is an area more than associated with comfort in life, the careful surgery of which is just as promising as in other foci. The tonsil beds have become an exhausted subject. Within the past five years hundreds of clever submucous resection operators have sprung up all over the country. With the comparative paucity of literature and discussion of the lingual tonsil, may this contribution stimulate further interest in an equally clear and denfinite area.

Probably laryngologists have been conservative because of the rather anxious element here involved. Few generous surgical grasps of the lingual tonsil with Myles' clever instrument, or any of the types of snares and scissors, and mass removal of any considerable portion of tissue are unattended with anxiety as to that "bete noire" of all surgical procedure, uncontrollable hemorrhage. Frankly, that seems the one serious reason why interference in this area could produce anxiety, as there can surely be no function lost by removal of superfluous masses here. It is, however, but fair to admit that certain men of valued opinion advocate the functional value of tonsillar tissue, and Swain[1] definitely alludes to the physiological value of the lingual tonsil.

It is an interesting situation. Here is a portion of the Waldeyer ring which, by its mechanical conditions, tends to increase rather than atrophy in later life; here is a place where slight alterations are magnified in their subjective sensation to the patient, where a small focus of cryptic involvement simulates the impression of a foreign body, where the vascular engorgement frequently present would suggest initial opportunity for sarcoma or other lesion, where the unseen crypts (if the faucial tonsils are the menace they are reputed to be) afford abundant opportunity for tubercular and streptococcic infection, where a partial exsection is attended by subsequent contraction, where a secondary laryngeal congestion may in a measure be obviated — these and many other reasons would seem to counterbalance our reticence in surgical attack and tendency to relegate to palliative treatment areas which so readily invite clever surgery, and, by universal opinion, little hemorrhagic difficulty.

GENERAL CONSIDERATION

Lingual tonsils, of course, form the fourth link in the famous Waldeyer chain of lymphatic nodules with an absence of the more defined suspending capsule of the faucial tonsils and the vegetative lobulation of the pharyngeal area, yet resembling the latter in many respects. Its presentation in the cleft between the epiglottis and the base of the tongue is a manifold one, from the sessile arrangement of mounds (Figure 1) with a scarce demarcation from the circumvallate papillae to the distinctly bilateral masses of immense lobular form (Figure 2) which may almost overhang the epiglottis.

Ballenger[2] calls attention to the lobular formation of overhang which is significant in the lingual tonsil. Between these extremes are the irregularly placed nodules, often massed on the bands running over the faucial tonsillar area, or sometimes standing up as one conspicuous mass with accumulated crytic point. Anatomically, we note the absence of complete restraining capsule, the frequent lack of symmetry in the two portions and sometimes associated with unilateral distortion of the epiglottis, which may be either primary or secondary in significance. Grant[3] alludes to unilateral lingual tonsil lobe as being a definite cause of an irritating cough and by removal eradicating the same.

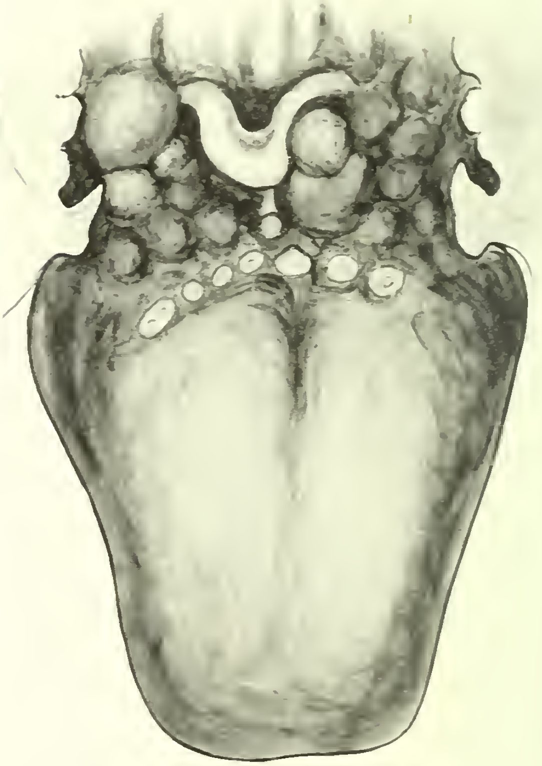

Fig. 1.

Barnes[4] refers to an accessory thyroid gland as occasionally mistaken for lingual hypertrophy and situated at the site of foramen cecum but a little anterior to the lingual.

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[1] Swain, N. Y. Med. Record, 1911.

[2] Ballenger. Wm. L.: Diseases of Nose, Throat and Ear, 1911.

[3] Grant, J. G. D.: Proceedings Royal Society, 1910.

[4] Barnes: The Tonsils, Faucial, Lingual and Pharyngeal, 1914.

It is always a satisfaction to find what one is looking for, whether it be a cinder upon the cornea, impacted cerumen in the ear or stone in the gall duct. Here in the lingual tonsil area, when symptomatically inviting to examination, one is seldom disappointed in finding new or varied picture. Even in the normal throat when viewed for purposes of demonstration (and therein lies a word of caution lest we estimate too much) the postlingual picture will be interesting — semi-pathologically irregular hypertrophied masses, varicosed veins of the lingual plexus, spots of follicular degeneration or hyperkeratosis, interference with the free swing of the epiglottic dome, something of this sort is reasonably sure to substantiate the postlingual irritation and fullness. If nothing else, we are quite likely to find areas of coated mucous membrane which the anterior tongue only half suggests.

It is rather characteristic that this hypertrophy persists in later life, while the other tonsil areas (faucial and pharyngeal) may become atrophied, and in that large percentage of individuals, ministers, lawyers and singers who carelessly or ignorantly scrape and irritate the throat, this obstructive fulness would seem to become more marked as life progresses, producing a reflex neurosis as distinctive as the pressure of postseptal bulge upon the middle turbinate. It is indeed to this factor that the study of the lingual tonsil may be wisely directed.

Mechanically, first, then it becomes a definite obstructive factor, obstructive in the free manipulation of the extrinsic muscles of the pharynx and upper larynx, constantly irritated in mass swallowing and increased like a surface abrasion rather than relieved in the clearing efforts of the cough. As indicated above, its close relation and resemblance to the circumvallate papillae often would make its surgery a dual operation, although it is not evident that slight interference in that area would produce any gustatory deficiency.

The physiological significance is one which passes deeply into the realm of body chemistry and will be convincing in so far as we accept the belief that this lymphoidal tissue is unimportant to the body economy after a certain early period of life and to the degree in which importance be placed in the toxic absorption of the products of cryptic degeneration. Danziger[5] defends the tonsil as excretory rather than receptive to bacteria. That the tonsil area affords the uniformity of temperature, moisture and pabulum most favorable for bacteriologic growth will be generally accepted, and Dwyer and Gignoux[6] in their bacteriologic examinations at the Manhattan Eye, Ear and Throat Hospital, report an amazing array of streptococci, staphylococci and specialized bacilli present in the tonsillar crypts and in at least three distinct instances within the past six months, where faucial and pharyngeal tonsils have been completely removed, the writer found a marked septic inflammation in a mass of lingual tonsil, almost a typical follicular tonsillitis. Wilson[7] even reported *Bacillus aerogenes capsulatus* as found in the tonsil.

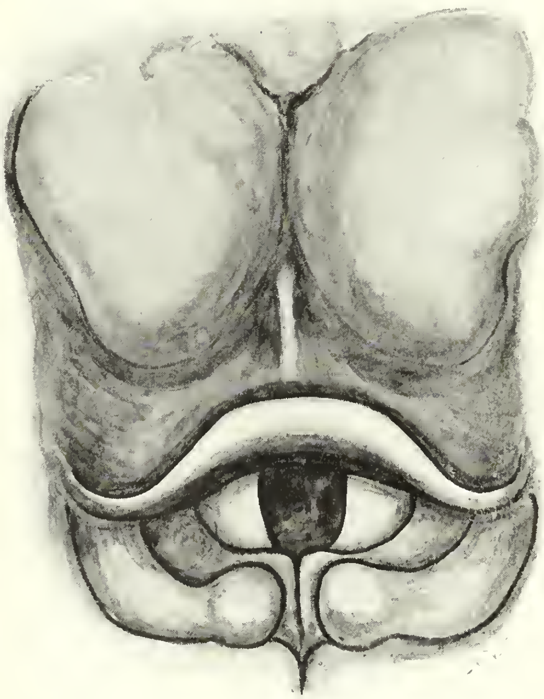

Fig. 2.

If toxic nephritis of acute character may be secondary to a tonsil inflammation, as in one very serious case seen this past summer, even associated hematuria and blood casts, why should not a general toxemia, even approaching phases of acidosis, result from septic involvement here.

Again, this is an era of overhauling and reorganization. The dentist of the present day spends more time in the prevention and cure of pyorrhea and his organization of the mechanical factors of the correct dental approximation than he does upon the preparation of bridge and filling. Mechanical overlapping of the lingual tonsil nodules with slit-like apertures affords a ready pocket for the collection of particles of food and débris which may in some cases remain a considerable period. Their putrefactive change both in the manifestation of an unsavory breath and in actual mouth sanitation is worth considering. These and other mechanic and physiologic relations make the area worth therapeutic investigation.

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[5] Danziger: N. Y. Med. Jour., 1912.

[6] Dwyer and Gignoux: Reports Manhattan Eye, Ear and Throat Hospital, 1912.

[7] Wilson, J. G.: Jour. Ophthal. and Oto-Laryngol., 1915.

SUBJECTIVE EVIDENCES AND SYMPTOMATOLOGY

All the forensic professions, the public speakers and singers, present the most common phase of lingual tonsil disturbance. This is not only from the nervous irritability incident to varix, but the sensation of fulness which invites to constant swallowing and clearing of the throat. Its relative subjective sensation resembles the ophthalmic cinder or the work of the alimentary ferment, a hundred times greater than its actual interference. The single swollen red papillary nodule gives rise to constant sensation of the mass swallowed and then recurring in succession. The touch of iodin and glycerin, tannin or silver will frequently give almost immediate temporary relief. Biedert[8] in his careful report of the Episcopal Hospital defends the palliative topical application as a successful means of relieving this local irritation, and also claims the origin in the lingual tonsil area of certain cases of hemoptysis.

The hacking of the throat, or its constant clearing, whether an educated muscular movement or an irritating scrape, gives the foundation of chronic inflammatory change with all its subsequent fibrosis and organization and must be a forerunner of premature vocal maturity if not an invitation to subsequent pathologic changes in and about the larynx.

Again, in many instances, a patient insists upon the presence of foreign body, spicule of bone, toothbrush bristle, etc., the focus of which trouble may be readily located and reveals a little surface ulcer (Figure 3) as defined in other parts of the mouth or throat. Its cauterization and treatment remove the sensation.

A patient was under observation last winter who had a chronic hyperkeratosis, slight in the faucial tonsil area, but very marked in the lingual and with such large particles as to produce considerable irritation. This and true tonsillitis types under observation could only have been found under careful lingual tonsil examination, and too many patients are referred to the careful specialist who testify by incidental remark to the fact that the laryngeal mirror has not been used at all.

The reflex neurotic symptoms especially secondary to varicosed masses produce the same subjective disturbance as referred nerve irritability elsewhere in the body, and justify surgical treatment for their relief. Probably the galvanocautery holds a most important place here.

To refer to another point of interest, when a nose presents (with a markedly bowed septum almost obstructing one side of the nose) its concavity filled with turbinates enormous from both hypertrophy and vasomotor change, our statement as to obstructed side is frequently met by patient's retort that, "My discomfort is on the other side, Doctor." The patient must then be convinced that any focus of irritation causes a pan-rhinitis. In the same category must be placed the general types of pharyngitis in which single foci of irritation affect the entire throat. Only too frequently the spray and topical application shoot wide of the mark and the patient overcomes the symptoms in spite of rather than assisted by the treatment. Clinical evidence as above stated, however, usually rewards the lingual search.

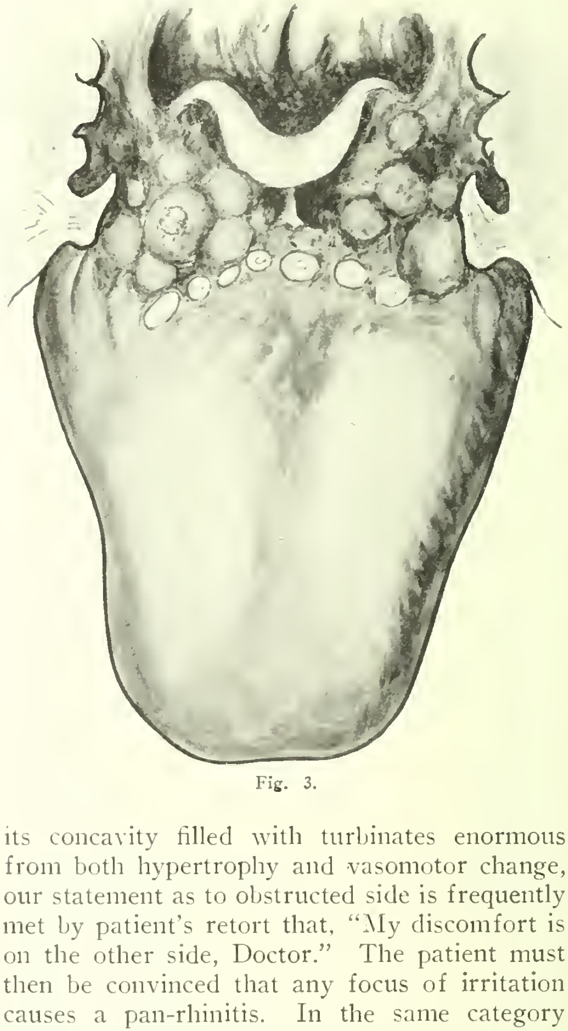
Fig. 3.

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[8] Biedert: Laryngoscope, Vol. XXIV,1914.

SURGICAL PROCEDURES

Technical procedures with the lingual tonsil area are usually of three types, surgical removal by scissors, tonsillotome or snare (Figures 4, 5, 6); galvanocautery with occasionally galvano snare; and topical application, which may include even such active cauterizing agents as trichloracetic acid and chromic acid. Omitting consideration of the galvanocautery, so appropriate for treatment of varix, and the milder topical applications, we limit our discussion to the definite surgical procedures which, as illustrated in the drawings, are of three principal types.

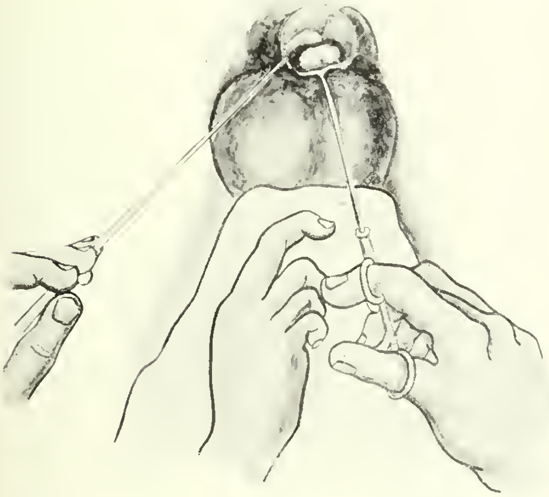
Fig. 4.

After rather a fairly extensive experience, based upon some 270 operative cases, a rather strong preference lingers for the use of Myles' tonsillotome, or some modification of it, because a removal accomplished so quickly and with so little pain to the patient of a considerable portion of tissue is attended with more than proportionate relief, and while exuberant granulations and slough are excessive for a few days, the contractile process and the actual fibrous integrity of the nodules continues for an appreciable period of time, and three months' period would reveal a more satisfactory lingual surface than a week. Coakley[9] demonstrates the increased amount of fibrous tissue in the lingual over the other Waldeyer localities of hypertrophy, considering hypernutrition as an important factor here both in causing the hypertrophy and the subsequent venous stasis.

This area does not seem exquisitely sensitive. Whether the drawing forward of the tongue acts as a mechanical analgesic or whether the display of surface mucous membrane nerves is less active or the constant traumatic influence incurred in swallowing renders the surface a more or less hardened one, at all events the territory does not seem proportionately painful as in other areas of the throat and its subsequent discomfort is equally light from absence of muscle involved. Therefore, it is not difficult with a 10 or 20 per cent. cocain and a little adrenalin (1-1,000) or both render the field comparatively bloodless and produce surface anesthesia sufficient for several bites of tissue. Care must be taken to hold the palate well up and to throw the epiglottis free in the field, otherwise the denudation might occur too far forward. It has been the custom of the author to train the patient himself to hold the tongue forward, as this is easily accomplished in the few preliminary treatments which might be desirable.

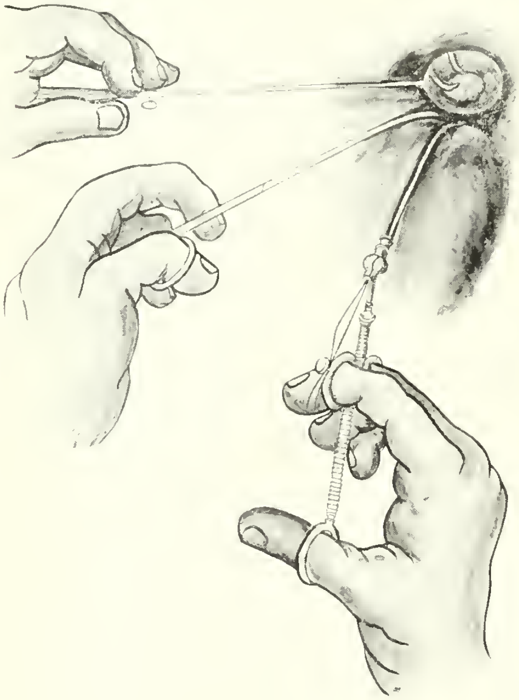
Fig. 5.

In the snare procedure, it will be necessary to have the tongue held by the patient and the laryngeal mirror by an assistant, which is not difficult if the assistant be clever and kneel on the floor, hooking his arm up from beneath. It is well to obtain a firm seizure at fully the depth desired on either side of the median line, for the surface of a nodule once removed affords poor subsequent grasping ground, at least until formal period of healing. By making the removal comparatively slow, a certain vessel constriction will occur, and, as said before, the hemorrhage does not meet expectation either in profuseness or continuance, though there are, of course, irregular cases.

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[9] Coakley: Diseases of Nose and Throat, 1914.

In the history of some of these patients grouped, about 20 were very large mass tonsils, almost the size of a child's hypertrophied tonsil, as indicated in the drawing shown. Most of the cases were irregular nodual masses in which repeated removal occurred of masses one-fourth, one-third and even one-half an inch in diameter. The reversed mirror picture, the reversed position of the instrument antero-posteriorly, and the oblique twist to left or right in opposite direction make the procedure one of deftness and skill, for the masses pocketed deep in the neighborhood of the epiglotto-pharyngeal bands may be as important as those directly pressing upon the tip.

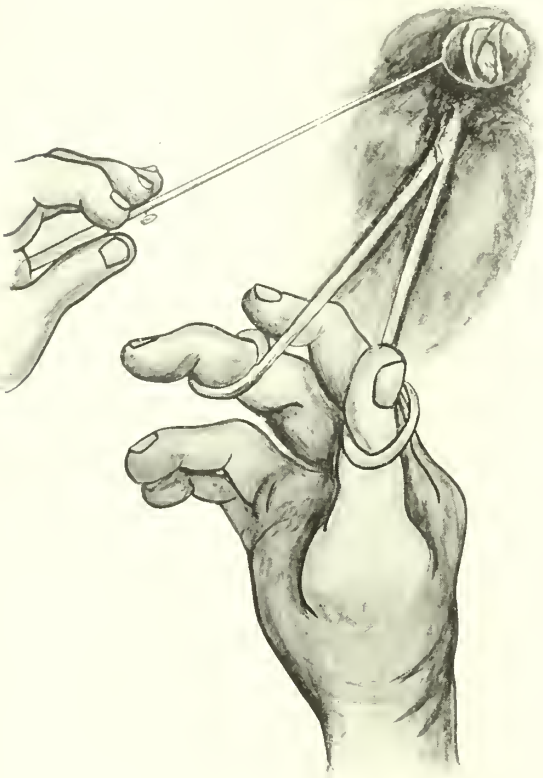
Fig. 6.

Surgical cleanliness here is an essential as elsewhere, though an occasional mouthwash such as peroxid or weak Dobell's solution, or even one of the combination antiseptic lozenges frequently repeated, would probably be sufficient. Extension of infection from wound surface is not likely, so the surgical field is an automatically safe one. The type of capsulation prevents the complete enucleation, as in the case of the faucial tonsils, though it is quite likely that some device may be made at future date in which pharyngeal tonsil as well as the lingual may be thoroughly eradicated. It certainly would be better surgery.

In crystallizing these points, the first essential is a careful education of the patient for proper assistance, and the proper anesthesia of the field; second, the development of coordinate skill in the operator in reversed and irregular position, as in the case of postnasal polyps; third, the careful decision as to just the proper amount of tissue to be taken without injury to the basement membrane of the tongue and proper consideration for hemorrhage. This work is, however, gratifying, and its results commensurate with the careful septal operation.

GENERAL DISCUSSION OF THE JUSTIFICATION OF LINGUAL SURGERY

In conclusion of this discussion, it might be pertinent to consider three or four important phases.

1. Is surgical as contrasted with palliative treatment justifiable, and, if so, when? Many specialists will contend that by means of ordinary topical application they are able to control and relieve much of the disturbance. This is doubtless quite as true here as in any other field of surgery, but, after all, is it the right view to take? Surgical procedure is not attended with particular shock, especially with local anesthetic; the public mind has been educated to quickly and definitely eradicate a source of evil rather than temporize from timidity. The fairest treatment to give a patient is to save future greater disturbance and expense by directly reaching and eradicating the trouble at its source, and this will probably even save immediate expenditure of time and money. Granted that a thing is wrong, it is productive of trouble and its distant sequence may be serious. As the palliative care will be an aggravated one, direct surgical intervention is the fair treatment we would wish accorded ourselves. Again, patients meet an inevitable reaction and pessimism when long-continued office treatment fails of results and evidence proves prolific that surgical intervention was indicated.

2. What is the normal, thorough investigation and care of the oto-pharyngo-tract? Its normal investigation determines factors which insidiously are producing disturbances in catarrhal involvement, integrity of hearing and toxemic

extension. In the different areas involved, first the factors tending to increase catarrhal otitis media, either of vascular or pharyngeal end, must be investigated and relieved, Factors in the nose which would produce reflex disturbance and disturbances in secretion and olfaction, sinus involvement, should be found and eliminated. Infective foci in the otopharynx before giving rise to maldentition, lymphatic extension, joint toxemia or tuberculosis should be cleared up; so, in some measure, should this important lingual tonsil situation at the very entrance to the voice chamber be carefully investigated and disturbance removed well in advance of initial lesion. The age would seem to have come in which a careful review of the eyes, teeth, pulmonary, the vascular centers, the alimentary tract and excretory apparatus, yes, and even the nasopharyngeal spaces should be carefully reviewed, reorganized and given their reconstructive toilet. From this point of view, surgery is more than amply justified.

3. Are the attendant dangers of serious consequence? There are no important nerves to become involved. There would seem to be no evidence of taste disturbance. A consensus of opinion even among radical operators discounts the dangers of hemorrhage. Surgical shock is a matter of individual opinion. It would seem then to simply be a question of decision as to what needs attention.

4. What are the important sequences to justify interference? This might also be argued from a negative point of view, as the unfavorable results without interference prove the importance of examination and reconstruction. The most common are the changes occurring in the speaking and singing voice and upper bronchial irritation, and in our opinion a careful statistical review of cases in which later disturbance has occurred would be found to coincide with initial evidences of lingual involvement.

One serious case of fatality from sarcoma, involving both the lingual and faucial tonsils, with cervical extension, as well as a recent examination of what appears to be an early malignant lesion in this area, would justify the early removal of any possibilities of such degeneration. Traumatism, over susceptible areas in predisposed patients would easily produce ill result.

Then again, too much emphasis cannot be laid on that indefinable reflex nervous disturbance from an area of constant inflammatory irritation. In other parts of the body such disturbance produces a central nervous upset. Many a patient is constantly worried even to melancholia by subjective discomfort of this sort. Such reflex nervous disturbance would be most potent where attention is most accidentally and regularly directed to it. The lump at every swallow, the constant clearing of the throat, the drawn and nervous tension at the base of the tongue, cannot but produce a jar and a neurotic change.

In final deduction, this area proves a most interesting one; its field of relief is possible; its surgery not dangerous; therefore, its lesson obvious.

1901 Chestnut Street.

DISCUSSION

Dr. George M. Coates, Philadelphia: Most of us will agree with the author of the paper that affections of the lingual tonsil are frequently overlooked, especially in our crowded clinics and by the younger practitioners in our specialty, and also that the significance of pathologic changes is usually unrecognized or minimized. Somehow, even a careful laryngologist, after inspecting the teeth, mouth, nose and pharynx, skips the lingual and proceeds directly to an examination of the larynx and trachea in searching for the cause of the symptoms for which the patient seeks relief. As Dr. Babbitt points out, many symptoms attributed to the larynx or trachea have their origin in, or are prolonged by, lingual tonsil hypertrophy or infection. Often simple topical applications to this region, combined with appropriate throat hygiene, affords great relief to persons suffering with obscure coughs and hoarseness of differing degrees, although in old cases true pathologic changes eventually occur in the larynx itself. Aside from mere medication, operation affords the opportunity for brilliant results, albeit the operation itself is usually a trivial one, such as lineal cauterization or the removal of small pieces of lymphoid tissue with the snare or guillotine.

In these cases it is the subsequent cicatricial contraction that accomplishes the desired result. After the complete removal of faucial and pharyngeal tonsils, we frequently observe some compensatory hypertrophy of the lingual, more particularly of the lateral masses, which, unless carefully removed at the time of operation, as is practiced by some operators, so enlarge as to give the picture of an incomplete faucial tonsillectomy, although the faucials were completely removed with the capsules intact. In these surface operations on the lingual, good cocain anesthesia usually may be easily secured, just as it can in the neighboring organ, the larynx; and in spite of the prevalence of enlarged veins and varices, the bleeding is usually negligible. If severe hemorrhage should occur (as it may in deeper operations at the base of the tongue) it is in a difficult region for control. The lingual tonsil is a rather favorite place for the lodgment of a certain class of sharp-pointed foreign bodies, typified by fish bones, which may easily be overlooked, as they give the patient the sensation of being farther down in the esophagus. The direct laryngoscope affords an easy method for the detection of these and their removal, as well as for the diagnosis of other pathologic states. Aberrant or lingual thyroid is a comparatively rare condition of which we see examples at times and which must be borne in mind when making diagnoses in this region, as, in case it is present, it is not susceptible to the same measures for the relief of symptoms caused by it, some of which are distinctly similar in type to simple hypertrophy and chronic infection of the lingual tonsil.

It may be fairly urged on the younger members of the profession not to underestimate or neglect the study of this organ in health and disease, as I believe it often is neglected both in practice and in literature. But scant attention is paid to its diseases in most textbooks, and the literature relating to it is rather meager compared to that of other regions more in the limelight. In making a throat examination the base of the tongue should be inspected carefully as a routine measure, and an appropriate place be provided for it on the history card.

Dr. Lewis H. Taylor, Wilkes-Barre: A thought that occurred to me as Dr. Babbitt was reading his paper is why this subject had not been discussed more frequently. My introduction to this matter took place a number of years ago, in the early period of my practice, when I had under my care a young lad who is now one of our prominent physicians. He had a persistent irritating cough, which I could not overcome. In consultation with a specialist in New York, I was shown at once by him the beautiful picture of those enlarged glands at the base of the tongue by means of the laryngoscope. In a very skilful manner he made the topical application; and since that time I have had many such cases. Previously I had not had any, because I did not know anything about the condition.

I think that Dr. Babbitt possibly did not lay enough stress on the point of cough. I believe that many of these cases of irritating cough (the so-called old-fashioned "hacking cough" that we so often associate with incipient tuberculosis) that is not productive, nothing being raised, but that cannot be gotten rid of by the patient, may be due to this cause. I have seen a number of cases of that kind. When a patient is sent to me with the suspicion of tuberculosis and yet it has not been found, I frequently discover this condition to be present.

As to surgery, I believe that in the majority of these cases surgery is not necessary. I have the patient hold his tongue with a piece of gauze. Then, with the laryngoscope in one hand and the other free, I have readily been able to make the application under good illumination. An application of the saturated solution of nitrate of silver is usually very efficient. I presume that Dr. Babbitt will say that this will not produce a cure, and yet it seemingly did so in many cases, when I had also applied the galvanocautery, which we call an actual surgical procedure. Removal with the scissors or with the snare, which is not easy to do, is often not necessary. Neither is the application of the cautery easy.

In a patient, a young woman, subject to tuberculosis and with this irritating cough, in whom I found these enlarged glands, by making a few applications of the galvanocautery, I succeeded in entirely relieving her of her cough for a number of years. There has been no return, so far as I know. I occasionally see her as a patient for other troubles. I believe the application of nitrate of silver directly to the glands is very efficient. A mere whiff of cocain with atomizer seems sufficient to quiet the throat and allow the use of the remedies.

Dr. George W. Mackenzie, Philadelphia: My first acquaintance with the lingual tonsil was through experience gained by the study of small patients after the removal of the faucial tonsils. I noticed that they were frequently troubled with cough afterward, and on examination I found the lingual tonsils enlarged. This led me to a study of the lingual tonsil of all cases before and after removal of the faucial tonsils, when I was surprised to find that in many cases a compensatory enlargement of the lingual followed, and when it did a troublesome cough was the leading symptom.

When a patient presents himself with a dry tickling cough, with little or no expectoration, which is aggravated by slight exposure and by lying on the back in bed, and ameliorated often by turning onto one or the other side, a cough that seems to come without reason, and the more the patient coughs the more he is inclined to, and which terminates with a brief period of retching, I suspect an enlargement of the lingual tonsil. Examination of the base of the tongue usually confirms this suspicion. In a few cases where the enlargement of the lingual tonsil was not found, excessive scrolling of the epiglottis was present, so that the upper edge of the epiglottis was buried into the base of the tongue.

I do not recall that Dr. Babbitt mentioned anything about the reflex itself. It may be recalled that the anterior or lingual surface of the epiglottis is supplied by the fifth nerve, while the posterior or laryngeal surface is supplied by the superior laryngeal nerve, a branch of the tenth, and wisely so. Nature has made of this surface a sort of monitor to the larynx to protect it against foreign bodies. The moment anything touches the posterior surface, there is a pronounced tickling sensation followed by a spasmodic reflex cough. In the event of an enlarged lingual tonsil, and especially where there is excessive anterior scrolling of the epiglottis, the sensation produced is the same as that of a foreign body and results in the same reflex cough.

According to Tandler, the line of separation of the fifth and tenth nerve supply is a sharp one, along the upper and lateral margins of the epiglottis.

It sometimes happens that a large lingual tonsil produces very little, if any, cough in those cases where there is but little anterior scrolling of the epiglottis. It is the contact of the upper edge of the epiglottis with the lingual tonsil that causes the cough, and it matters not how this contact is broken, whether by removal of the lingual tonsil or punching off the scrolled portion of the epiglottis, the results are the same. Our efforts, however, should be directed toward the particular factor that we feel is responsible for the cough.

Dr. Clarence M. Harris, Johnstown: My experience has probably not been so extensive as that of some of the speakers, and I may have overlooked a number of these cases in children. I am not inclined to think that I overlooked them in adults, however. As has been intimated by one of the speakers, if we are not on the lookout for this trouble, we shall not recognize such conditions. The principal symptoms complained of by the adults whom I have treated have been those of cough and the sense of a foreign body; and the cough has always been worse under excitement, or in rooms in which many people were congregated.

As to treatment, I have succeeded with solutions of silver and, in marked cases, have used the galvanocautery, making vertical incisions at points where thickened areas were most prominent. I have had a few cases recur, but this treatment was generally successful.

Dr. Babbitt, closing: This is a simple operation in a way, probably it is the simplest that we do. For that reason there are many disasters occurring from connecting throat and nose with general practice. If there is one right way to treat such cases, it is a pity that some superior intelligence cannot regulate this so that experimental work by a great array of general practitioners might be omitted, for, in such cases, it is in a way experimental work. I have a rather strong feeling on the subject, having been associated with perhaps 2,000 tonsil operations in connection with the Children's Hospital. Probably one-fifth of these have been operated on before in some fashion or other and a portion of the tonsil removed, with often pillars and muscular structure bruised. Then again, to produce the last trauma is a thing to be considered and I personally do not interfere with fingers and hands and tear things up or in any way sacrifice any more of the plica triangularis than possible. It is wise to try to keep the pillars intact. I follow the Makuen-Smith operation usually rather than the knife incision and am inclined to go back with the Allis dissector, avoid drawing, pulling or tearing, and separate without leaving a poorly suspended arch.

Perhaps the suggestion of reconstruction in our education as to doing these simple affairs is more important because we are not likely to make so many mistakes in the more serious cases.

THE EXAGGERATED IMPORTANCE OF BLOOD PRESSURE, AS WE ESTIMATE IT*

RAY PARKER, M.D.
NORRISTOWN

Among our tests made in arriving at a diagnosis and prognosis we must be careful not to attach undue importance to those in which the personal factor enters nor in those whose reliability differs with nearly every patient.

At the present time in hospital and even in private practice, with every physician who makes thorough studies of his cases, so-called blood pressure readings are regularly taken and are used in a large measure to govern treatment. This seems to be crediting the estimation of blood pressure with a great deal more importance than it should have, and this for several reasons. To begin with, if the fingers are kept at the radial pulse, and a reading made when the impulse is first felt again after the loosening of the arm band, one man will detect the blood coursing through the artery much sooner than another, because the tactile sense will be more acute in one than another. In a recent case, which has come under my own observation, two experienced men, in taking the blood pressure of the same patient, with the same apparatus under exactly similar conditions, found a persistent difference of 35 mm. Hg.

If the auscultatory method is used, the difference, I think, would probably be still greater with different operators. The other important factor influencing the blood pressure readings is the difference in the tissues going to make up the arm in different individuals. When the arm band is tightened sufficiently, the flow of blood in the brachial artery is stopped, but the force exerted by this arm band is not by any means all expended in stopping the flow of blood through the artery. Much of the force is used to compress the tissues of the arm and more will be used in compressing the walls of the artery, which must, of course, be done before the flow of blood through it will stop. Taking into consideration these factors we can readily see how wide variations of our blood pressure reading may occur. In a thin, emaciated individual with soft, flabby, wasted tissues the muscular tissues would offer but slight resistance as compared with the hearty, well developed mechanic or athlete, who, because of his occupation or training has a well developed and powerful arm. Also, with the increase of age comes the inevitable hardening of the walls of the arteries themselves. In a young adult or a child the artery is usually compressible, in the adult of 60 the artery is sclerotic and thereby is much more hard to compress than the artery in the young subject. In instances such as these, which indeed constitute the great majority of cases, it is easy to see what a faulty thing our estimation of blood pressure is. It may not only be faulty, but actually be dangerous. A high blood pressure reading in a man of 60 may suggest treatment to cause its reduction, whereas, as a matter of fact, his cardiovascular apparatus may actually be weak and in need of stimulation. His arteries are hard and sclerotic, however, and are, therefore, hard to compress, and a high blood pressure reading is obtained, and treatment will be given for its reduction, thereby weakening an already weakened heart. Our blood pressure reading in this case does not only give us the pressure exerted by the blood stream in this man's arteries, but, in addition, gives the amount of resistance offered by the walls of the artery to compression.

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* On succeeding pages in this issue will be found a symposium on blood pressure, given before the Philadelphia County Medical Society, Jan. 24, 1917.

We can readily see how far we are from our mark when we speak of blood pressure, if we give the foregoing factors the consideration they should have.

Before the blood pressure apparatus came into such general use the force imparted to the fingers over the radial artery was our index as to whether blood pressure was normal or not. With the increased use of the present apparatus it was said that the palpating fingers led to faulty conclusions, that estimation by this method varied by a great deal from that obtained by our blood pressure apparatus. Taking into consideration what I have said, it is possible that the palpating finger really is the best guide. The well trained, sensient finger of a man seeing many patients every day differentiates high blood pressure from a hardened artery and this our mechanical apparatus in its present form can never do.

It is not my idea that the actual pressure of the blood within the arteries is of no importance. Such information, if it could be obtained, would be invaluable. At the present time, however, there is no instrument or method by which we can obtained the actual blood pressure. Until such a method is devised or instrument made, blood pressure as we estimate it, is not blood pressure. We should not allow our minds to become used to thinking of arm pressure as blood pressure, and what is of much more importance, we must not let arm pressure govern our treatment.

State Hospital for the Insane.

LOCAL ANESTHESIA IN SURGERY OF THE COLON AND RECTUM

Dr. William M. Beach's conclusions fully detailed in the *International Clinics* for March on the subject are as follows: (1) Eliminating terrorism associated with operations under general anesthesia; (2) absence of postoperative distress and complications; (3) the anesthesia is complete, thoroughly blocking the field, thus preventing shock; (4) it persuades the patient to undergo an operation because the detention from business is shorter and postoperative pain is less; (5) skill in technic is achieved by virtue of the surgeon's care in gentle handling of a conscious patient; (6) it will teach him to handle tissues more deftly in general anesthesia realizing that much pain and tendency to infection follows tearing and mutilating of soft parts; (7) local anesthesia conserves the patient's peace of mind, as there are many who will testify to its efficiency and complete relief with so little inconvenience.

INDUSTRIAL INJURIES TO THE EYES *

WILLIAM CAMPBELL POSEY, M.D.
PHILADELPHIA

Statistics show that in the United States 75,000 persons are killed annually through accidents. Of this number, 35,000 die from industrial injuries. Of 2,000,000 nonfatal accidents, probably 160,000 are accidents to the eyes.

Although the last census records the number as smaller, there is strong evidence to place the number of blind in our country at about 100,000, of whom approximately 10,000 lost their sight as the result of accidental injury in industrial occupations. Quite apart from the suffering and unhappiness entailed by these accidents, which cannot be appraised in dollars and cents, it has been estimated that it will cost the nation nearly ten million dollars to care for these blinded workmen during the remainder of their lives.

Small wonder is it, then, that all who are interested in the preservation of the health and lives of the commonwealth have assembled here, not only from humanitarian but also for economic reasons, to discuss ways and means to lessen the number of accidents and to safeguard both the workman and state against preventable loss. According to a statement recently forwarded me by the National Association for the Prevention of Blindness, "The industries providing the greatest number of industrial accidents to eyes are foundries, galvanizing plants, machine factories, metal and wood working plants, lead and color factories, chemical works, and the dusty and poisonous trades. The classes of workmen showing the largest percentages of eye accidents are smelters and furnacemen, welders, grinders and machinists, furnace helpers, and railroad workers. It may appear rather strange that this last class, railroad men, are so subject to eye accidents in their work, yet we find that the records of the great railway systems which operate one-half of the total mileage in the United States, admit for the period 1908-1910 seven cases of total disability, that is, loss of both eyes, while 390 suffered the loss of one eye." Railroad employees exposed to eye injuries preventable by goggles are chippers, riveters, boilermakers and grinders.

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* Read by invitation before the Industrial Welfare and Efficiency Conference under the direction of the Pennsylvania Department of Labor and Industry, Nov. 23, 1916.

* The paper was based upon material furnished by the National Association for the Prevention of Blindness, and was illustrated by over one hundred lantern slides showing workmen engaged in the various industries dangerous to the eyes, and the various devices such as shields and screens which have been installed in many manufactories to prevent accidents to the eyes. Some of these slides were loaned by the National Association for the Prevention of Blindness, by Dr. W. W. Blair of Pittsburgh, and the State Department of Labor and Industry. Others had been prepared under Dr. Posey's own supervision to illustrate the text.

One of the greatest menaces to the eye is burn from molten metal. This may occur in filling the ladle with the metal or when the latter is being poured into the mould, the sparks flying in all directions, frequently burning the face and eyes of the workmen. Most serious are the explosions which follow when molten slag or lead are permitted to come in contact with vessels or implements containing moisture, the superheated steam thus generated blowing the hot metal with great force for considerable distances.

A great source of danger to workmen's eyes is the process of "chipping." Chippers are men who remove the rough surfaces from steel casting which frequently remain after the molten metal has hardened, this being accomplished either by a hand chipper or by means of the more modern pneumatic implement. The fragments dislodged fly from the casting with great velocity and force, and frequently injure not only the eyes of the chippers themselves, but those of their fellow workmen or the passerby. Goggles are imperative for all those engaged in chipping or in the vicinity, and screens composed of wire or burlap should be so placed that they act as buffers to the flying particles. Flying scale is frequently thrown off from the rolls of a blooming mill and employees engaged in this work should wear protecting masks of fine brass netting.

When water and steam is turned into a water gage, with which all boilers are provided, the pressure at times is great enough to burst the glass and to blow the fragments of glass into the face of the engineer observing the gage. In a recent year in Massachusetts seven men lost the sight of both eyes and one workman that of one eye from the bursting of such gages. This has been obviated by providing the glass column with a protecting shield of brass which covers the glass when turning steam and water into the gage and is capable of being rotated to the side when the danger of this act is over and it is necessary to ascertain the registration of the water in the boiler. The New York Central roads have installed an admirable model of this device in their works, and no accidents to the eyes have occurred from bursting gages among their many employes since it has been in use.

The emery wheel is a constant source of danger. When operated at high speed, it may burst and its fragments kill or injure workmen close at hand. Most serious are the burns and scars inflicted on the cornea of those who work with unprotected eyes, by the dust given off from the wheel while tools and instruments are being ground on it. The breaking off of fragments from the tools in the process of grinding provides, however, a still greater source of danger to the eyes, and many an eye has been blinded by these flying particles of steel. Many manufacturing establishments now protect their workmen from injury from bursting wheels by encasing them in hoods of steel, and the eyes of the men from broken particles of wheel and from flying chips by shields made of heavy plate glass, the transparency of the glass permitting the workman to observe the tool he is grinding. Most wheels are also provided with exhaust connections from the rear of each hood to a forced draft pipe, which carries away much of the dust by a vacuum system.

Another frequent source of danger to the eyes, not only in the industries but also in domestic life, is the breaking of steel particles from the head of tools which have become flattened over or "mushroomed" from long use. While "mushrooming" is especially liable to happen to cheap tools, it may occur also in the best hand-wrought implements, for a hammering tool must be fairly soft to prevent its becoming brittle and if used too long it will naturally flatten out. The prevention of accidents from this source consists in sending the tools to the blacksmith just as soon as they begin to show signs of wear. The Tennessee Coal, Iron & Railroad Company has considered this danger of sufficient importance to cause a warning placard to be posted in their workyards which reads as follows: "Danger. You are warned against working without proper eye protectors or with battered tools. Get proper tools and eye shields from your foreman."

Some of the most serious and oft times hopeless cases the ophthalmologist is called on to treat occur from blasting operations, either in mining or in excavating for foundations, etc. Such accidents result either from the premature explosion of cartridges with too short fuses, or by delayed explosions, the injuries occurring when the workmen, after what they suppose sufficient time has elapsed after the charge has been fired, seek to investigate the failure of the explosion. At other times, when a number of cartridges have been fired by an electric current, the workmen clearing away the debris caused by the explosion, are seriously injured by the delayed explosions of several of the cartridges which had failed to go off at the initial charge. The injuries to the eyes in such cases are frequently caused by little bits of copper from the exploded caps of dynamite or from fragments of rock, substances incapable of magnetic attraction, and on that account extremely difficult and often impossible to remove from the eyes.

Another source of injury to the eyes is from exposure to an excessive amount of heat and light rays, emanating from furnaces in which glass and metal are being subjected to a temperature of great magnitude. In welding of metals by the electric arc, the oxygen-hydrogen flames or some similar high temperature medium, a temperature of from 4,000 to as high as 7,500 degrees F. is frequently attained. The ultraviolet rays generated by this process are extremely harmful to the eyes, including changes which may lead to blindness. In some of the processes it is necessary for the workman in charge to gaze intently into the furnace and watch for the change in color of the molten mass which indicates that the desired transformation in its composition has been attained. Workmen subjected to such intensity of light and heat radiations must wear proper protecting devices, and welders are usually equipped with a complete metal helmet, which is absolutely light-proof, except for the ocular apertures, which are covered with certain forms of colored glasses. Mention will be made presently of the best kind of glass for this purpose.

Faultily constructed electrical appliances may be a source of eye injury, blindness from cataractous formations in the lens sometimes occurring in eyes subjected to the blaze of light from a short circuit. I had under my care, a few years ago, a workman in one of the large coal companies of the state who had lost his sight in this way, but who fortunately regained it after a successful cataract operation on each eye. Venturesome electricians occasionally essay to light a cigaret from an electric arc, ofttimes with disastrous consequences.

An indirect, though probably not an infrequent cause of accidents in our factories, is improper lighting of the workrooms. In many establishments the lighting is so insufficient or the lighting fixtures so badly placed, that workmen are either unable to see the dangers which beset them, or their eyes, weakened by the glare of unprotected lights, bcome incapable of properly fulfilling their functions.

Dr. Nelson M. Black of Milwaukee, who has made an extensive study of factory illumination, says in this connection: "Factories should be well lighted, first because poor lighting injures the eyes, and second because poor lighting detracts from the earning capacity of the workmen and is an extravagance. Good lighting is economical. Superior work can only be accomplished under good lighting conditions, with which vision is preserved, health is conserved, and factory output is increased from 8 to 15 per cent. Accidents are much less likely to occur. The saving produced by good lighting will pay many times over the cost of the installation of good lighting facilities. The maximum number of accidents occur during the time in which artificial light is used. A well-lighted factory is more productive than a poorly lighted one. Bad lighting is detrimental to eyesight and health. It is an extravagance that factory owners cannot afford."

The illumination of all rooms should be uniform and as devoid of shadows as possible. Ordinarily the system of indirect light which has so many admirable features, is unadapted to this kind of illumination, as the ceiling and walls of factories are necessarily darkened by smoke and dirt and there is no reflection of the rays of light. Some steady and sufficient form of direct lighting is therefore indicated, and an overhead system which throws a diffuse light on all the machines is preferable to one which has for its object the illumination of single lathes, wheels, etc.

Brief mention must be made of burns by acids and alkalies. Lime burns are exceedingly common, and the inexperienced surgeon will often be deceived at first by their apparent triviality, not realizing that the danger to sight is not from the immediate result of the burn, but from the later implication of the cornea from the slow destruction of the surrounding tissue wrought by the alkali. Where there is danger from chemical accidents, water should always be available for washing the acid or caustic agent from the eye. For this purpose it is better to flush the eyes thoroughly but gently by water running not too forcibly from a rubber hose. This is usually a much better expedient than trying to neutralize an acid with an alkali, or an alkali by some weak acid solution.

BEST MEANS AVAILABLE FOR PREVENTING AND MINIMIZING THE DANGER OF OCULAR INJURIES OCCURRING IN INDUSTRIAL OCCUPATIONS

It should be the duty of the employer to install in his workplace every form of safety device which is on the market and which is adapted to the peculiar form of his industry.

Proper goggles should be furnished to the employees and a sincere and active campaign of instruction instituted in the works, to instruct and demonstrate, to the workmen, the various dangers to which they are subjected, and explanation and reasons given for the safety devices which have been installed. An efficient first-aid service should be created, and so far as the eyes are concerned, workmen should be absolutely prohibited from offering any aid whatsoever in case of injury. Too many eyes are lost in consequence of well-intentioned though misdirected attempts at removal of chips and cinders by "handymen" about the shop. I am convinced from a long experience in treating workmen's eyes, that dirty toothpicks and ends of matches, rusty pocket knives, etc., are responsible for many hundreds of blind in our own state alone.

In case of injury a protective bandage should be applied and medical aid sought at once. In the proper cleanliness of the hospital, with its manifold appliances, the skilled physician will detect that the chip which the workman had thought had only grazed his sight or had dropped from the eye entirely after inflicting a slight wound, has in reality entered the globe. Under Roentgen-ray exposure, the chip is located, a magnet applied, the foreign body removed and the eye saved. How different from the fate of an eye that has been scraped by a rusty knife by a comrade, allowed to become infected and is lost in a few hours from suppuration.

Placards graphically describing the dangers of injuries to the eyes in the various occupations in which they are engaged, printed in the languages of the workmen, should be hung in prominent positions in the works. In addition to these sources of information, the foreman or others in authority should give explanatory and admonitory talks to the workmen at frequent intervals, and every effort should be made to acquaint them with the danger of their work. With the employer thus engaged at no little cost and annoyance to himself to safeguard his employee, it seems but just that the workman should willingly cooperate to the best of his ability and avail himself of the safeguards which have been provided for him. Indeed, the exigencies of the situation seem so great that it does not seem unreasonable to attach some penalty in the event that proper treatment is refused or postponed. This would appear to be especially proper in the matter of wearing goggles, for the usefulness and effectiveness of this simple device to protect eyesight has now been proved beyond gainsay. Thus the American Car and Foundry Company has proved that the use of goggles has reduced accidents in their plant 75 per cent. It is argued by some that the wearing of goggles in the event of accident only jeopardizes sight the more, on account of the liability of injury to the eyes from the broken glass of the goggles. As a matter of fact, however, this apparent danger is without foundation, as may be judged by the following evidence. There has not been a single case of injury to the eyes from broken glass since goggles were introduced into the shops of the New York Central Railroad. The American Steel Foundries Company collected ninety-four pairs of goggles, all with lenses broken from flying chips of steel from their works during a period of three months, and in every case the eyes had escaped injury. Had the goggles not been worn, some of the eyes at least would have been lost. In another large steel foundry where spectacles have been worn since 1911, forty-eight pairs of goggles were collected in one month with lenses broken by flying pieces of steel; 297 pairs were gathered among the several foundries covering a period of six months. During this entire period not one serious eye accident occurred.[1]

Furthermore, in an experience of nearly twenty-five years, during which I have treated many hundreds of eyes injured in industrial establishments, chiefly in my services at the Wills Eye and Howard Hospitals, of Philadelphia, I do not remember to have seen a single eye injury from a broken goggle, nor can I recollect having observed similar accidents in the practice of any of my colleagues. Manufacturers of goggles are exceedingly careful to obtain a proper tensile strength of glass and frame. I have been informed, for example, that one of the tests applied consists in dropping a hardened steel ball five-eighths of an inch in diameter, 20 inches from an electric magnet directly on the surface of the lens, without permitting the latter to rest on any support other than its own frame. The lenses subjected to this test will withstand thirty-five blows of this kind without breaking, and the construction of the frame is such that in the event of a breakage occurring, the frames tend to push the broken glass away from the eyes instead of allowing it to be pressed in.

The perfect goggle has not yet been made. It is true that there are a large number of quite satisfactory goggles on the market, which admirably serve the purpose of protection against such accidents as are caused by flying fragments of steel, etc., for all that is necessary under such conditions is a glass of sufficient strength to resist the impact of the foreign body, and wire or leather-screened sides with small apertures provided permitting of some circulation of air, to prevent the entrance of chips from the side. To save the eyes from injury from chemical accidents and those from molten metals, greater protection is necessary, and some form of transparent medium other than glass which will not become fogged or steamed when subjected to heat and gaseous fumes.

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[1] This information was derived from a statement submitted to the speaker by the National Association for the Prevention of Blindness.

A special form of goggle is necessary when the eyes are exposed to the action of intense heat and light rays, such as occurs in oxy-acetylene welding, etc., on account of the injurious effect not only of the heat, but also of the ultraviolet rays generated in such processes on the eyes. This has been accomplished in the past by the use of glasses that absorbed the infra-red or heat radiations. The objections to this method are, first, that it has been found impossible to make a glass that would absorb sufficient of the dangerous infrared or heat radiations at one end of the spectrum and the ultraviolet or chemical rays at the other without cutting down the useful and harmless visible light to such an extent that it was extremely difficult for the workman to see his work; second, that the glass by absorbing heat radiations soon becomes intensely hot and then gives out heat radiations itself, thus defeating the object in view.

Quite recently, Professor Pfund of Johns Hopkins University, conceiving the idea of getting rid of the infra-red or heat radiations by reflection, devised the lens which bears his name and which is made as follows: A flat piece of Sir William Crookes, or other glass of like nature, is coated with an almost infinitely thin layer of 22-karat gold. This gold layer being extremely delicate is protected by a flat piece of hard white crown glass. According to Professor Pfund, the action of the combination is as follows: All of the radiations, except the extreme ultraviolet, pass freely through the hard white crown glass. Encountering the gold layer, the ultraviolet and visible radiations up to about the middle of the red, pass without difficulty between the little particles composing the gold atoms. At about the middle of the red the light waves become too long to pass between these little particles and rebound or are reflected. Thus half of the red and practically all the infra-red or heat radiations or waves are reflected or thrown back. The ultraviolet and visible radiations or waves which have passed through the gold layer encounter the Sir William Crookes glass, which allows the visible light to pass freely but absorbs the ultraviolet. Thus we have disposed of the infra-red or heat waves by absorption, and have passed the visible. This visible light can be regulated by varying the thickness of the gold coating. As regularly made the coating is of such thickness as to pass 25 per cent. of the visible, but, if necessary, can be made to pass 75 per cent. of the visible without seriously cutting down the efficiency in the infra-red or heat end of the spectrum. As regularly made it reflects 98 per cent. of the heat and is claimed by Professor Pfund to be at least twenty times as efficient as the best of the old style protecting glasses for the same transmission in the visible spectrum. Proof of the practical value of Professor Pfund's glasses still awaits, I believe, practical demonstration.

According to Dr. Nelson M. Black of Milwaukee, who has long been interested in this subject, "Glass in which the color tends toward a yellow or yellowish green affords the greatest protection from the harmful rays. Such glass is found on the market under the name of amber, euphos, fieuzal, akapos and noviol glass. Even this glass must have added to it, in the process of manufacture, a dark smoked tint to reduce the intensity of the glare in order that they may be used with comfort. Deep red glass is an effective protection against dangerous light and is in general use in many industries. It is usually combined with yellow, blue, or green and blue glass. The objection to such a combination is the inability to distinguish details and to see to get about, also the increased weight caused by using two or more pieces of glass."

I am glad to announce that there seems to be a chance of soon having an authoritative report on the spectral values of glasses of various tints, for I have been recently informed by the Bureau of Standards in Washington that in response to a request I made a year ago as chairman of a committee on the hygiene of the eye, operating under the auspices of the American Medical Association, they are making a spectrophotometric examination of a series of colored glasses submitted by the leading optical houses of our country. Transmission for ultraviolet, visible and infra-red will be determined and the results of the investigations will be published in a circular or bulletin. It will be a source of great satisfaction to have an authoritative report on this important subject.

Twenty-First and Chestnut Streets.

TREATMENT OF ACUTE ANILIN POISONING, AND THE VARIOUS DERIVATIONS INCIDENT TO ITS MANUFACTURE *

J. CHALMERS LYONS, M.D.
MARCUS HOOK

Anilin poisoning presents a problem that has not been known heretofore in this locality to any great extent.

As a preface, I will give a short explanation of the methods of manufacture, showing how the exposure to anilin occurs. The basic material is benzol. This is first nitrated, forming nitrobenzol. This is further treated, forming anilin, and from this and from nitrobenzol further products are made. One which chiefly interests us being dinitrobenzol. Poisoning occurs either from inhalation in form of vapor particularly when in a heated state or by absorption through the skin by actual contact, the most severe cases being by skin absorption.

The plant with which I am associated is of very recent construction, and the buildings are laid out with the view of causing the least handling possible of toxic products. The question of ventilation has received very great attention by the engineer. The laborers employed in the processes are largely Polish and Russian. We have had in all, during the past year, which includes all the time of operation of the plant, nine severe cases of anilin oil poisoning, and three cases of dinitrobenzol poisoning. The treatment of each was as follows:

PROPHYLACTIC

Under this is embodied the examination of each man when employed, and subsequent monthly inspection, the examination being a thorough one of heart and lungs, with an estimation of both systolic and diastolic blood pressure and an examination for any physical defects.

Any applicant for work, or one who develops during the period of his employment any defect of the heart or lungs, is not allowed to come into contact with any of the processes of manufacture. Men who pass the examination are instructed in safeguarding themselves as much as possible, instructed regarding the danger signals of anilin poisoning.

Each foreman has charge of the welfare of the men working in his department, and notices are posted instructing the men as to the dangers and as to the proper procedure to follow in case of any exposure to anilin or toxic products incident to its manufacture.

Clogs are issued to each employee, and respirators and rubber gloves are worn when necessary.

That the process is largely automatic, and the plant so well constructed with the view of exposing the men the minimum amount of time to dangerous fumes, is probably the explanation why so few really serious cases have been seen there.

There is also a service building equipped with shower baths, lockers and a temporary structure used as a "first aid," and examination room.

TREATMENT OF A MILD ACUTE CASE

On the development of an acute case of anilin poisoning, the usual symptoms being headache, vertigo and nausea, with more or less degree of cyanosis, the man is at once taken to the service building, his working clothes removed and he is sponged with a weak solution of acetic acid. This is followed by a general bath, then he is dressed in his street clothes. He is then given a mild cathartic, such as Seidlitz powder or Epsom salts, and put to rest in the fresh air under the supervision of the first aid chief, who acts under the direction of the physician.

On the development of any untoward symptoms the physician is notified at once. This treatment is invariably efficacious. The employee returns to work again in twenty-four hours, as a rule, but is not exposed to anilin for several days.

TREATMENT OF A SEVERE CASE

The symptoms of a severe case differ from that of a mild one only in degree. The headache is more severe and the respirations are irregular and shallow, there is drowsiness, and pulse is slow and feeble. The skin is deeply cyanosed, and the man may finally become unconscious. The treatment is in the beginning that of a mild case. Should symptoms of collapse develop, the man is given active stimulation, the best agent being hypodermic injections of camphorated oil, repeated as required, and the administration of oxygen for as long a

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* Read before the Delaware County Medical Society, Nov. 16, 1916.

period as is necessary. Alcoholic solutions, such as Hoffman's anodyne, aromatic spirits of ammonia or whisky, are contra-indicated.

I have only had to treat two severe cases, which I will cite:

Case 1.—A pipe fitter, who got a quantity of anilin on his clothing and neglected to report to his foreman, was taken about six hours after with violent symptoms. The treatment as outlined above was instituted, and the man was back to work in less than a week.

Case 2.—A workman was attempting to stop a leak in the top of one of the storage tanks, and a large quantity of anilin was spilled on the floor. He, wishing to conceal the mishap, attempted to clean it up without reporting to his foreman. The fumes overcame him and he dropped and lay in it for between one and two hours before being discovered, it being at night when few were employed. He could be roused when discovered but was so cyanosed as to be almost black. Pulse was rapid and feeble, and respirations shallow and very irregular. This man required continuous use of oxygen for twenty-four hours with vigorous stimulation and treatment for the anemia following the experience. He returned to work in two weeks, and is, as far as can be determined, none the worse. In my estimation this case had every license to terminate fatally, as you can scarcely conceive of a more extensive exposure, his clothing being actually saturated with anilin.

The plant is equipped with both lungmotor and pulmotor, but has never had occasion for their use.

In regard to the three cases of binitrobenzol poisoning, I would say that while the symptoms and treatment are substantially the same as of anilin poisoning, the recovery is much slower and is followed by a more pronounced anemia.

It is our purpose to do research work in the near future to determine if there are any blood or kidney changes in men who have been working in anilin for several years, and to make a report of these results at some future time.

VESICAL CALCULUS INCARCERATED IN VAGINA

Edward Lyon, M.D.
Genito-Urinary Surgeon, Williamsport Hospital
WILLIAMSPORT

CASE REPORT

E. A.—A girl, 2 years of age, was admitted to the Williamsport Hospital, March 12, 1917, with a history of incontinence of urine. A physical examination revealed a well-nourished, apparently healthy child, normal in every way excepting that she had partial exstrophy of the bladder with absence of the anterior wall of bladder and entire absence of part of urethra. On inserting a probe in the vagina a hard object was felt, which could not be removed without causing pain. The following day, under anesthesia, a vesical calculus, about the size of a small marble and weighing 5 grains was removed from the vagina.

The etiology seems to have been a small calculus gaining access to the vagina and becoming gradually enlarged by urine dribbling into the vagina until it became too large to be removed without operation.

I know of no record of a similar case and think only the anomalous condition of this bladder would have produced this case.

CASE OF MERCURIAL POISONING

F. L. Marsh, M.D., and W. A. Marsh, M.D.
MOUNT PLEASANT

We wish to report this case in the hope that it may be of some help to many. The case is one of mercurial poisoning. The patient was admitted to the Mt. Pleasant Memorial Hospital at 11:30 a. m., having taken two cyanid of mercury tablets the previous day at 4 p. m., with suicidal intent. The tablets contained 7½ grains each. Twenty minutes after ingestion the patient was taken with violent vomiting which was soon followed by bloody mucous stools and abdominal cramps. He had received no treatment prior to admission to the hospital. On admission he was still vomiting and having frequent small bloody and mucous stools, abdominal cramps and cramps in the muscles of arms and legs. He was immediately taken to the operating room. The median cephalic vein was opened and 15 grains of sulphid of calcium, dissolved in 15 ounces of distilled water and carefully filtered, was introduced into the circulation. Five grains of sulphid of calcium was given by the mouth every two hours for twenty hours, and then every three hours for several days more. At the end of twenty-four hours a second intravenous injection of 7 grains of sulphid of calcium in 7 ounces of water was given. The symptoms all subsided and the patient made a quick recovery. No undue effects of the sulphid of calcium was noticed. Patient was discharged from hospital in ten days but has been coming back for observation and is perfectly well. This treatment was suggested to us by Dr. Wilms of the B. Merrill Ricketts Experimental Surgical Research Laboratory.

Would you like to know where Boston gets all the spectacles which cartoonists put on noses in the Hub? Answer: Philadelphia.

Our deep-throated contemporary Morris Earle assures me that in the making of eyeglasses "Philadelphia leads the world. It was first in this field and is still first."

Then he enumerates Quaker City triumphs to prove his statement. In 1782 Franklin, who never had a complete day without inventing or starting something, made his famous bifocal "specs."

An even century later Christopher Huber invented the cemented bifocal glass, and in that same year Ivan Fox, who is still active in the field of improved vision, produced the offset guard for glasses.

John L. Borsch of this city brought out the invisibly fused bifocals seventeen years ago, and Anton Wagner, another Philadelphian, invented the toric lens.

Surely if the world fails to see things clearly and straight it is no fault of Quaker City genius.

Girard.
—*Philadelphia Ledger.*

THE PENNSYLVANIA MEDICAL JOURNAL

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The Medical Society of the State of Pennsylvania does not assume responsibility for any statements or opinions published in this Journal.

ATHENS, PA., APRIL, 1917

MEDICAL PREPAREDNESS

Under existing conditions it is desirable that every physician as well as every other loyal citizen of America should be prepared to render active service to the federal government, remembering that the protection afforded by the government has made it possible for its citizens to enjoy liberty, peace and prosperity.

The avenues through which the most effective service can be rendered by members of the medical profession have taken definite and concrete form. Briefly the plan is that all medical activities should cooperate with the Council of National Defense, which was created by act of Congress, August 29, 1916. Section 2 of the act is as follows:

> "That a Council of National Defense is hereby established, for the coordination of industries and resources for the national security and welfare, to consist of the Secretary of War, the Secretary of the Navy, the Secretary of the Interior, the Secretary of Agriculture, the Secretary of Commerce, and the Secretary of Labor.
>
> "That the Council of National Defense shall nominate to the President, and the President shall appoint an advisory commission, consisting of not more than seven persons, each of whom shall have special knowledge of some industry, public utility, or the development of some natural resource, or be otherwise specially qualified, in the opinion of the council, for the performance of the duties hereinafter provided. . . .
>
> "That the Council of National Defense shall adopt rules and regulations for the conduct of its work, which rules and regulations shall be subject to the approval of the President, and shall provide for the work of the advisory commission to the end that the special knowledge of such commission may be developed by suitable investigation, research, and inquiry and made available in conference and report for the use of the council; and the council may organize subordinate bodies for its assistance in special investigations, either by the employment of experts or by the creation of committees of specially qualified persons to serve without compensation, but to direct the investigations of experts so employed."

On October 11, 1916, President Wilson announced his appointment of the Advisory Commission as follows:

Mr. Daniel Willard, President of the Baltimore & Ohio Railroad, Chairman.

Mr. Hillis Godfrey, LL.D., President of Drexel Institute, Philadelphia.

Mr. Howard E. Coffin, Detroit (who is also chairman of the Committee on Industrial Preparedness of the Naval Consulting Board).
Dr. Franklin H. Martin, Chicago.
Mr. Bernard Baruch, Financier, New York.
Mr. Julius Rosenwald, Vice President of Sears, Roebuck & Company, Chicago.
Mr. Samuel Gompers, President of the Federation of Labor.

The President in announcing the above appointments said:

> "The personnel of the Advisory Commission of the Council of National Defense, appointed without regard to party, marks the entrance of the non-partisan engineer and professional man into American governmental affairs on a wider scale than ever before. It is responsive to the increased demand for and need of business organization in public matters and for the presence there of the best specialists in their respective fields. In the present instance the time of some of the members of the Advisory Board could not be purchased. They serve the government without remuneration, efficiency being their sole object and Americanism their only motive."

The executive activities of the Council of National Defense are coordinated and carried out through the medium of the Director of the Council of National Defense, Mr. W. S. Gifford, and the chiefs of the various departments represented by the members of the Advisory Commission. Dr. Frank F. Simpson is chief of the Medical Section of the Council of National Defense.

The organization of the council and of the advisory commission provides that each member of the advisory commission shall gather about himself for the most effective coordination of the activities he represents, a committee or board consisting of representatives of governmental departments on the one hand, and civilian members on the other hand.

The medical committee, of which Dr. Franklin H. Martin is chairman, consists of:

William C. Gorgas, Surgeon General of the U. S. Army.
William C. Braisted, Surgeon General of the U. S. Navy.
Rupert Blue, Surgeon General of the U. S. Public Health Service.
Col. Jefferson H. Kean, Director General of Military Relief of the American Red Cross.
Dr. William H. Welch, Member of the National Council of Research.
Dr. William J. Mayo, Chairman of the Committee of American Physicians on Medical Preparedness.
Dr. Frank F. Simpson, Chief of the Medical Section of the Council of National Defense, and Secretary of the Committee of American Physicians on Medical Preparedness.

Many medical problems of defense which have bearing on the national defense are considered by Dr. Martin's committee and by the advisory commission and the Council of National Defense before being put into action by the governmental departments concerned.

COMMITTEE OF AMERICAN PHYSICIANS FOR MEDICAL PREPAREDNESS. ITS ORGANIZATION AND COMPONENT PARTS

In April, 1916, the national committee was appointed by the joint action of the presidents of the American Medical Association, the American Surgical Association, the Congress of American Physicians and Surgeons, the Clinical Congress of Surgeons of North America, and the American College of Surgeons. To that committee was delegated the responsible duty of formulating plans whereby the civilian medical resources of the United States might be ascertained and effectively coordinated.

The national committee organized, selected a chairman and secretary and an executive committee, and appointed a state committee of nine men in each state.

It is the fixed policy of this committee that all presidents and secretaries of the various state medical societies shall be members of their respective state committees during their incumbency in office. From the first it was contemplated that at the proper time the organization of committees would be perfected in each county of the country. That time has now come and such organizations are being rapidly perfected. In each instance the state committees are expected to select the county committees and to supervise their formation.

It is the fixed policy of the Committee of American Physicians on Medical Preparedness that the various important medical interests and activities of each county shall be represented on the county committees. This is done for the purpose of coordinating the important interests and activities so that the medical profession of the nation may present a compact and effective organization for the purpose of aiding effectively in the national defense. In order that this plan may be carried out with uniformity and precision throughout the country, the various state committees have been requested to have all county committees bear the following distinguishing name: The Auxiliary Medical Defense Committee of ....County, in ....State. The state committees have also been requested to provide that the county committees shall include the following in their list of members:

1. All members of national committee of the Committee of American Physicians for Medical Preparedness, resident in the individual county.

2. Members of the state committee resident in or near the individual county.

3. Representatives of the U. S. Army resident in the individual county.

4. Representatives of the U. S. Navy resident in the individual county.

5. Representatives of the U. S. Public Health Service resident in the individual county.

6. Representatives of the State Board of Medical Examiners residing in the individual county.

7. Representatives of the state or city Public Health Service.

8. Ranking medical officer of the National Guard.

9. President and Secretary of the local Medical Officers' Reserve Corps Association, if there should be such an organization.

10. Deans of medical schools.

11. President and Secretary of the County Medical Society.

12. President and Secretary of any other important medical societies.

13. Medical Director of the local Red Cross Units.

14. Other representative medical men.

From time to time specific duties will be assigned to the various state and county committees. These duties will be in accord with the policy of the Council of National Defense, and should be executed promptly and precisely by those who are called on to cooperate in this manner with the Council of National Defense.

The committees will call to their assistance those who have been appointed field aides by their various state committees and such other physicians as they may desire to have cooperate with them.

Among the specific duties which the county committees are requested to perform at this time are the following:

First: That these committees cooperate with the national and state committees of the Committee of American Physicians for Medical Preparedness in their efforts to gain needful information regarding the civilian medical resources of their own communities, and in their efforts to coordinate civilian medical activities for prompt mobilization in case of need.

Second: That they secure applicants: (*a*) For the Army Medical Corps; (*b*) for the Medical Officers' Reserve Corps; (*c*) for the Naval Medical Corps; (*d*) for the Coast Defense Reserve Corps of the Navy; (*e*) for the National Guard.

Third: That they cooperate, individually and collectively, with the Medical Department of the Army, Navy and Public Health Service and with the Council of National Defense.

Fourth: That they cooperate with the Red Cross in their efforts to bring that organization to the highest point of efficiency.

Physicians recommended for any of the above service should be of the highest type. They should be free from suspicion of addiction to drugs or drink. Medical officers who go to field duty should by preference be under the age of 45.

On April 26, 1916, the executive committee of the Committee of American Physicians tendered the services of the committee to the President of the United States. He expressed himself as being pleased with the patriotic tender of services and regretted that existing laws did not permit the acceptance by the federal government of gratuitous services, but stated that the matter would be referred to the Secretary of War and the Secretary of the Navy for the purpose of devising plans by which the good offices of the medical profession could be accepted and utilized to best effect by the federal government. He further stated that the plans would be referred to the Committee of American Physicians for comments and suggestions. The executive committee was permitted to make suggestions regarding the bill creating the Council of National Defense. During the last year this committee and its various subsidiary bodies have been actively engaged in formulating and carrying out various activities in conformity with the general plans for national defense, which have been undertaken by the federal government.

The splendid work done by the various state and other committees was of such extent and value that the Council of National Defense at its first meeting requested the Committee of American Physicians to continue their various activities under the guidance of the Council of National Defense, and asked the secretary of the Committee of American Physicians to act as chief of the medical section of the Council of National Defense. Since that time the various activities have gone forward with renewed energy.

Some of the activities which have either been completed or are well under way follow:

1. Some 20,000 medical men selected from all parts of the country have been classified according to the training and the kinds of work which they do best.

2. An inventory of hospitals and other medical institutions is well under way.

3. It has been the fixed policy of the Committee of American Physicians to aid the American Red Cross in bringing its medical department to the highest point of efficiency. With that object in view, and in order to foster the spirit of cooperation, the members of the national committee of the Committee of American Physicians accepted invitations to become members of the national committee of the medical department of the American Red Cross. In order further to promote the harmonious cooperation of the two organizations, most of the members of the various state committees of the Committee of American Physicians were also made members of the state committees of the American Red Cross. The various

county committees will also be expected to cooperate in carrying out the plans of the two organizations.

4. The establishment of military training for senior medical students in a large percentage of the high grade medical schools of the country.

5. The establishment of more effective military training for hospital groups for members of the Medical Officers Reserve Corps, for dental students and others.

6. The appointment of a Committee for the Standardization of Medical and Surgical Supplies and Equipment. The purpose of this work is to designate a list of articles essential to the successful conduct of civilian and military medical and surgical activities so that in the event that it should become necessary to curtail production all of the energies of the drug and instrument makers would be devoted to necessary articles rather than to those which are desirable but not essential. On this standardization committee are representatives of the Army, the Navy, the Public Health Service, the Red Cross, the Council of National Defense and a number of the most distinguished members of the various specialties of civilian medicine. In their work of coordination and standardization this committee will take council with the manufacturers of the various supplies under consideration.

7. Much valuable information supplied by medical and other observers who have worked in the war zones of Europe is being gathered and classified.

8. The presidents of important national medical organizations of the country have been requested to suggest to the medical section of the Council of National Defense the kinds of work which members of those organizations are best fitted to perform, and to suggest plans whereby their activities and resources might be utilized to best advantage. This request does not contemplate an inventory and organization of these resources. The purpose is that having received suggestions offered by the various organizations, those suggestions will be maturely considered and such as conform to the plans of the Council of National Defense and can be utilized to advantage, will be adopted. The various organizations will, in that case, be requested to cooperate fully and promptly in perfecting the plans of the Council of National Defense.

The foregoing memorandum embodies only a very small percentage of the problems now under consideration. It is neither wise nor desirable, however, to present them in detail at this time. F. F. S.

MEDICAL AMENDMENTS TO THE WORKMEN'S COMPENSATION LAW

The Legislative Medical Conference of Pennsylvania, representing the three state medical societies, after various conferences with interested parties has decided to favor the amendments proposed in House Bill No. 1137, introduced by Hon. James F. Woodward, chairman of the House Appropriation Committee.

It will be noted that it is proposed to eliminate the "fourteen days" disability period and also the limit of "$25 unless a major surgical operation shall be necessary in which case the cost shall not exceed $75." That is, each case will stand on its own individual merits without any fixed limitation of time or cost of treatment.

Legislation cannot be brought about simply by telling the legislators what the medical profession desires or thinks proper. In this case the employer, the employee, society in general and various differences of opinions and prejudices have to be considered. This bill considers only the strictly medical and surgical treatment of injured employees with necessary care and supplies. Other bills asking for other amendments to the present law have already been introduced. What we medical men need to do is to ask our representatives and our senators to favor House Bill No. 1137. Never mind what we may have said or desired heretofore, let us keep this in mind, House Bill No. 1137. It is fair to all parties and will be a great improvement over the present law. The bill has passed second reading in the House and is as follows:

AN ACT

To amend paragraph (e) of section three hundred six of an act approved the second day of June one thousand nine hundred fifteen, entitled: "An act defining the liability of an employer to pay damages for injuries received by an employee in the course of employment, establishing an elective schedule of compensation and providing procedure for the determination of liability and compensation thereunder.

Section 1. *Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania, in General Assembly met and it is hereby enacted by the authority of the same* That paragraph (e) of section three hundred six, of an act approved the second day of, June, one thousand nine hundred fifteen (Pamphlet Laws seven hundred thirty-six), entitled: "An act defining the liability of an employer to pay damages for injuries received by an employee in the course of employment, establishing an elective schedule of compensation and providing procedure for the determination of liability and compensation thereunder," which reads as follows:

"(e) During the first fourteen days after disability begins the employer shall furnish reasonable surgical, medical and hospital services, medicines and supplies as, and when needed unless the employee refuses to allow them to be furnished by the employer. The cost of such services, medicines and supplies shall not exceed twenty-five dollars unless a major surgical operation shall be necessary, in which case the cost shall not exceed seventy-five dollars. If the employer shall, upon application made to him, refuse to furnish such services, medicines and supplies, the employee may procure the same and shall receive from the employer the reasonable cost thereof within the above limitations. If the employee shall refuse reasonable surgical, medical and hospital services, medicines and supplies tendered to him by his employer, he shall forfeit all right to compensation for any injury or any increase in his incapacity shown to have resulted from such refusal" is hereby amended to read as follows:

(e) After disability begins the employer shall furnish reasonable surgical, medical and hospital services, medicines and supplies as, and when needed, unless the employee refuses to allow them to be furnished by the employer. *The compensation for such medical, surgical and hospital services and* the cost of medicines and supplies shall not *in any* case exceed the *prevailing charge of the community for like medical or surgical services to other individuals, or the usual ward charges for hospital services, and in event of a disagreement as to the amount which it is claimed should be paid for such surgical, medical and hospital services, medicines and supplies, the amount or amounts shall be determined by the Workmen's Compensation Board upon the application of either the employer, employee, doctor, surgeon, hospital or retail druggist.* If the employer shall, upon application made to him, refuse to furnish such services, medicines and supplies, the employee may procure the same and shall receive from the employer *such reasonable amount as the Workmen's Compensation Board shall determine.* If the employee shall refuse reasonable surgical, medical and hospital services, medicines and supplies tendered to him by his employer he shall forfeit all right to compensation for any injury or any increase in his incapacity shown to have resulted from such refusal.

IMPORTANT LEGISLATION AT HARRISBURG

House Bill No. 1341, a health insurance bill, referred to the Committee on Manufacturers. This is a long complicated bill making compulsory insurance for every employed person earning $100 a month or less, with a few exemptions, and provides for medical, surgical and nursing attendance, laboratory facilities and specialists, medical and surgical supplies, hospital treatment, maternity benefit and funeral benefits. It is the Model Health Insurance draft which has been extensively published, but for which the profession in Pennsylvania is not yet prepared. Physicians should discourage any favorable action at this time.

House Bill No. 1185, repealing the Midwifery Law. This was introduced by members of the profession, but is not endorsed by the Legislative Conference of the Medical Profession of Pennsylvania.

Senate Bill No. 770 amends the Medical Practice Act. This requires an improved three months' field course and service in military medicine.

House Bill No. 691, creating a State Board of Drugless Therapeutic Examiners, a short-cut to the practice of medicine, is a most pernicious bill but has already passed second reading in the house.

Senate Bill No. 325 provides for the sale and distribution of unclaimed animals in the public pound, for use in the promotion of biologic science and for the discovery of new methods of treatment in medicine and surgery. This bill has brought out the usual crowd of antivivisectionists, who were constantly and persistently present, and who set an example for the medical profession if they expect to succeed in any legislative program. Senator Miller of Clearfield County has worked hard for this bill and deserves the gratitude of every one interested in progressive medicine.

Several antinarcotic bills have been introduced and the Committee on Health and Sanitation is trying to evolve a satisfactory bill out of the many suggestions.

These are among the several bills now before this legislature of great interest to the practitioners of medicine. It must be confessed that the drugless therapeutists (House Bill No. 691), with a crowd of grateful patients, and busy antivivisectionists make the most show. They are not only constantly present, but keep up a persistent campaign of letters and telegrams from themselves and their sympathizers. Legislators do not want to pass laws antagonistic to the profession and against their advice, but when they receive hundreds of messages favoring a certain bill and none against it, they will naturally favor it. It is necessary for each doctor to do his part. If he favors the passage of the amendments to the Workmen's Compensation Act (House Bill No. 1137), he should see or write his representative and his senator. He should enter his protest against undesirable bills. J. B. McAlister.

INDUSTRIAL INJURIES TO THE EYES

An article elsewhere in The Journal calls attention to the important subject of industrial injuries to the eyes. One hundred sixty thousand accidents are said to occur annually in the United States, and of this number the great manufacturing industries of Pennsylvania contribuate perhaps the major portion. Such figures cannot help but arrest the attention and excite the interest of all. The natural query at once arises, Are all of these accidents necessary, and is all possible being done to avert them?

The essayist describes what has been done by employers in protecting their workmen from eye injury, and points out that greater cooperation on the part of the employees themselves is necessary, particularly in a general compliance with the request that protection glasses or coquilles be worn in all occupations dangerous to sight. Notwithstanding the fact that employers furnish such glasses free and the great advantage to be derived from their use is generally accepted, many workmen still refuse to wear them on account of the slight physical annoyance which they sometimes occasion. The Journal is pleased to hear that steps are being taken to request the present legislature to make the wearing of such coquilles mandatory in many industrial establishments.

The Commission on Conservation of Vision, operating under the auspices of the Medical Society of the State of Pennsylvania, has accomplished much during the past six years. It has been suggested that the multifold demands on the commission are too great a task on its members and that it might be better to transfer many of its duties to some salaried officer of the state, who could devote all his time to the solution of the many problems which would engage his attention. In addition to industrial injuries, the control of ophthalmia neonatorum and trachoma needs consideration and action, as well as a number of subjects of lesser importance. The commission, as at present constituted, might continue to act as an auxiliary and advisory board, but it would appear timely for Pennsylvania to follow the example of other states and have a trained officer whose sole employment should be the care of the eyes of the commonwealth. C. P. F.

ANNUAL LIST OF MEMBERS

The annual list of officers and members of county societies will appear next month. For various reasons it was not convenient to publish the list this month.

To have one's name in this list is worth more to the average physician than the amount of his annual dues to his county society, as the list is used as a directory of reliable physicians by publishers and manufacturers when sending out circulars, and by insurance and casualty companies when considering appointments.

There are a few former members who have not yet been reported as having paid their dues to the county society for 1917. These dues were due on January 1, but one who paid on or before March 28 retained his full membership in the county, state and national societies without any interruption. There is yet time for such delinquent to pay his dues to the secretary of his local society and have his name inserted on the proof of the list for his respective county if only he will attend to it at once.

HYPOPHOSPHITES INERT AND GLYCEROPHOSPHATES USELESS

Some time ago[1] the Council on Pharmacy and Chemistry published a report on hypophosphites. This report made it clear that there is no warrant for the therapeutic use of the hypophosphites. Their introduction into medicine was due to the erroneous theory that tuberculosis was caused by a deficiency of phosphorus (assumed to be the oxidizing element) in the tissues, and that the hypophosphites were the most suitable agents for the repair of this deficiency. This theory has long been discarded. It is now known, on the one hand, that lack of phosphorus has nothing to do with tuberculosis and, on the other, that the phosphorus in hypophosphites is far less assimilable than the phosphorus in ordinary food. Notwithstanding, force of habit and the advertising propaganda for proprietary hypophosphite preparations have combined to keep the hypophosphites in use, at least among the less progressive element of the profession.

Another report of the council[2] shows that glycerophosphates likewise do not possess the virtues commonly ascribed to them. They were introduced in the belief that inorganic phosphorus could not supply the assumed frequent need of the body for phosphorus, and that the organically combined phosphorus in glycerophosphates was capable of direct assimilation. Accumulating evidence indicates, however, that the body is unlikely to suffer from phosphorus deficiency, that it can assimilate inorganic as readily as organic phosphorus and that the glycerophosphates are broken up in the system and then absorbed in the same way as the inorganic phosphates are absorbed. The council report shows that the advertising of proprietaries has done much to spread the use of glycerophosphates as it has that of hypophosphites.

The therapeutic career of the glycerophosphates is likely, however, to differ somewhat from that of the hypophosphites. Introduced in 1868, the hypophosphites have held a place in our textbooks and Pharmacopeia with only now and then a word of protest. On the other hand, the glycerophosphates, which, in the form of sodium and calcium glycerophosphates, have just gained recognition by the U. S. Pharmacopeia IX, are met by a report of the Council on Pharmacy and Chemistry[3] which declares them superfluous.

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[1] Jour. A. M. A., Sept. 2, 1916, p. 760.

[2] Jour. A. M. A., Sept. 30, 1916, p. 1033.

[3] Annual Reports of the Council on Pharmacy and Chemistry, 1916, p. 52.

It is very evident that the vogue of worthless or useless drugs is going to be of shorter duration than formerly. The investigations of the council will facilitate the recognition of the few valuable additions to our materia medica which are discovered while worthless drugs or drugs which present no improvement over established ones will after a fair trial be relegated to the ever-growing therapeutic scrap heap.

HONOR ROLL FOR APRIL

The following component county societies have forwarded the 1917 per capita assessment for at least as many members as they had in 1916. The figures indicate the percentage of members paid, based on the membership of last year:

Green County, 105 per cent.
Huntington County, 105 per cent.
Montour County, 105 per cent.
Lehigh County, 104 per cent.
Schuylkill County, 103 per cent.
Montgomery County, 102 per cent.
Delaware County, 101 per cent.
Northumberland County, 101 per cent.
York County, 101 per cent.
Bucks County, 100 per cent.
Carbon County, 100 per cent.
Columbia County, 100 per cent.
Crawford County, 100 per cent.
Perry County, 100 per cent.
Potter County, 100 per cent.
Susquehanna County, 100 per cent.
Union County, 100 per cent.
Wyoming County, 100 per cent.
Sullivan County, 100 per cent.

On April 10 the *per capita* assessment for 6036 members had been received by the secretary, as compared with 5446 members at the same time last year.

THE OPTOMETRY BILL SIGNED

The Optometry Bill, Senate Bill No. 74, which went through both branches of the legislature with large majorities (156 to 16 in the House), was signed by Governor Brumbaugh on March 30. Prominent physicians appeared at the hearing granted by the Governor and expressed their belief that the bill was unnecessary and unwise inasmuch as the optometrists should come under the control of the Bureau of Medical Education and Licensure.

In approving the bill, the Governor said that he is not unmindful of the veto by himself of a bill with the same object last session, and says that, while he is still of the opinion then set forth, the bill this year "has been so drawn as to remove some of the cardinal objections to the bill." The Governor also says: "I express the hope that, in the next session of the Assembly the qualifications for admission to the study of optometry may be placed upon a higher educational basis and that the courses of study leading to a license may be made dignified, thorough and adequate to the power given by the Assembly to these optometrists."

CHANGES IN MEMBERSHIP OF COUNTY SOCIETIES

The following changes have been reported since the March Journal was printed, up to April 1.

Allegheny County: *New Members.*—W. E. Brown (by transfer from Westmoreland County Society), Isaac Davis, Orlando Fouse, Eben W. Fiske, Bessie Greenberger, John F. McGrath, Karl McScott, W. W. G. Maclachlan, H. O. Mateer, Charles L. Reed, DeWayne G. Richey, John C. Roe, Charles H. Wolfe, Harry F. Zinsser, Pittsburgh; Robert A. Campbell, Scott A. Norris, Homestead; France W. Holstead, Bakerstown. *Deaths.*—William W. McCleary (Coll. of Phys. and Surg., Baltimore, '84) of Bellevue, in Pittsburgh, March 5, aged 56; Eugene G. Matson (Univ. of Pennsylvania, '83) in Pittsburgh, March 10, aged 58; Elmer E. Patton (West Penn Med. Coll., '89) in New Kensington, March 2, from pneumonia, aged 55; Lewis Watson Smith (Univ. of Pennsylvania, '01) in Pittsburgh, February 23, aged 43. *Removals.*—Chevalier Jackson from Pittsburgh to Walnut and 17th St., Philadelphia; Fred L. Patterson from Johnstown (Cambria Co.) to Imperial; Joseph E. Willetts from Philadelphia to 5150-5152 Jenkins Arcade Bldg., Pittsburgh.

Armstrong County: *Transfer.*—William S. McCreight to Indiana County Society.

Beaver County: *New Members.*—Robert B. Dawson, Smiths Ferry; Regina M. Downie, Beaver Falls.

Berks County: *Death.*—John K. Seaman (Bellevue Hosp. Med. Coll., New York, '69) in Reading, March 12, aged 74.

Blair County: *New Member.*—Herbert C. Thomas, Altoona. *Transfer.*—Calvin C. Smith to Philadelphia County Society.

Bradford County: *New Members.*—John W. Chamberlain, Wyalusing; D. Leonard Pratt, Towanda.

Bucks County: *New Members.*—Clayton D. Fretz, Sellersville; John N. Jacobs, Lansdale (Montgomery Co.); Victor K. Marsteller, Spinnerstown. *Transfer.*—George S. Deibert to Lehigh County Society. *Death.*—William G. Winder (Jefferson Med. Coll., '69) in Philadelphia, March 26, from neuritis, aged 65.

Cambria County: *New Members.*—Bernard C. Healey, Barnesboro; Joseph J. Meyer, Johnstown. *Transfer.*—Ray Parker to Philadelphia County Society.

Carbon County: *New Member.*—Robert N. Kistler, Lansford.

Center County: *New Members.*—Oscar W. McEntire, Howard; Lewis E. Wolfe, Center Hall (by transfer from Franklin County Society).

Chester County: *New Members.*—George S. Cressman, Pughtown; John H. Davis, Coatesville;

Frank D. Emack, Phoenixville; William L. Hamilton, Malvern; John L. Spangler, Devon. *No Longer a Member.*—Joseph Bringhurst (withdrawn).

Clarion County: *Death.*—William M. Clover (Eclectic Med. Int., Cincinnati, '67) in Knox, February 26, aged 86.

Cumberland County: *Transfer.*—Norman B. Reeser to Lancaster County Society.

Dauphin County: *No Longer a Member.*—George King Strode (gone to Brazil). *Removals.*—Howard L. Hull from Harrisburg to Camp Hill (Cumberland Co.); Fannie Ross Stees from Harrisburg to Steelton.

Delaware County: *New Members.*—Henry C. Bartleson, Lansdowne; David Dalton, Sharon Hill.

Erie County: *New Member.*—R. H. Steadman, Erie.

Fayette County: *New Member.*—Charles C. Gans, Brownsville (by transfer from Franklin County Society). *Transfers.*—Lewis H. Seaton to Franklin County Society; Norwin L. Kerr to Westmoreland County Society.

Franklin County: *New Member.*—Lewis H. Seaton, Chambersburg (by transfer from Fayette County Society). *Transfers.*—Charles C. Gans to Fayette County Society; Lewis E. Wolfe to Center County Society.

Huntingdon County: *Resignation.*—Micaiah R. Evans.

Indiana County: *New Members.*—John N. Camp, Ernest; William S. McCreight, Blairsville (by transfer from Armstrong County Society). *Transfer.*—Albert L. Keim to Somerset County Society. *No Longer a Member.*—James R. Lytle, Creekside (withdrawn).

Jefferson County: *New Members.*—Samuel M. Davenport, DuBois (Clearfield Co.); Samuel J. Morris, Hamilton.

Lackawanna County: *New Members.*—William E. Davis, Frank L. Swift, Dunmore; John H. Moss, Archbald; Oscar J. Mullen, Hamlin (Wayne Co.), (by transfer from Wayne County Society). *Removal.*—S. Watson Fox from Scranton to Berlin, Md.

Lancaster County: *New Members.*—Norman B. Reeser, Lititz (by transfer from Cumberland County Society); Isaac S. Simons, Lancaster; William M. Workman, Mt. Joy.

Lebanon County: *New Member.*—John E. Marshall, Lebanon.

Lehigh County: *New Members.*—George S. Deibert, Allentown (by transfer from Bucks County Society); M. J. Kline, Settlersville. *Death.*—Charles J. Keim (Univ. of Pennsylvania, '75) in Catasauqua, March 18, aged 73. *Removal.*—Charles B. Reitz from McAllen, Tex., to State Hospital, Allentown.

Luzerne County: *New Members.*—Francis L. Alexaitis, Edmund A. Costello, Max R. Dinkelspeil, Morgan E. Griffith, Austin L. Hauslohner, Wilkes-Barre; Vincenzo Couzza, Hazleton; Peter H. Jamison, Nescopeck; John C. Storz, Luzerne; Lawrence M. Thompson, Kingston.

Lycoming County: *New Member.*—J. Grant Webster, Wellsboro (Tioga Co).

McKean County: *Death.*—A. Miner Straight (Western Reserve Univ., Cleveland, '70) in Bradford, February 19, aged 69.

Mercer County: *Death.*—Winfield Scott McFarland (Univ. of Wooster, Cleveland, '85) in Sharpsville, February 15, from cerebral hemorrhage, aged 69.

Montgomery County: *New Members.*—DeLorme T. Fordyce, Aaron L. Ruth, Russell C. Whitman, Conshohocken; James C. Landis, Pennsburg. *Removal.*—Horace H. Jenks from Wayne (Delaware Co.) to 918 Clinton St., Philadelphia.

Northampton County: George L. deSchweinitz, Bethlehem; Paul E. Schwarz, Easton.

Northumberland County: *New Member.*—James A. Hughes, Mt. Carmel. *Death.*—Fred Rice (Univ. of Pennsylvania, '00) in Sunbury, March 10, aged 41. *Removal.*—George G. Gill from Sunbury to State Hospital, Waymart (Wayne County).

Philadelphia County: *New Members.*—Markley C. Albright, E. Louis Artman, Walter H. Andrus, Leonard Averett, Charles H. J. Barnett, William D. Baun, Ada Russell Baxter, Franklin D. Benedict, John Bennett, Rosalie M. Blitzstein, H. Winfield Boehringer, Lee Boyce, Maxwell B. Brenner, John A. Brooks, Walton S. Burriss, Alfred S. Butz, Edgar H. Byers, Jacob A. Cahan, Darnley W. Catford, Radcliffe Cheston, Ebert C. Collins, Thomas A. Cope, Helen J. Cowie, Clarence K. Dengler, Harrington S. Dickinson, Ida L. Donmoyer, Alfred S. Doyle, John J. A. Doyle, Floyd D. Drumheller, Louis Edeiken, Preston M. Edwards, Jacob D. Feldman, Albert A. Fingles, John B. L. Flick, A. Theodore Gaillard, Ralph Jones Gilger, Edward Gilhool, Ellis E. W. Given, William P. Grady, George B. Gray, Frank B. Hancock, Frank J. Heisler, Joseph F. Hilly, George J. Holtzhauser, Clarence W. Judd, Leo A. Kane, H. Randle Kauders, Robert A. Keilty, Enoch G. Kleinas, Henry Knox, Carl F. Koenig, J. Stuart Lawrence (by transfer from Westmoreland County Society), Simon S. Leopold, Samuel F. Levin, Michael L. Levitt, Horace G. Longaker, Emanuel J. Lupin, Cornelius T. McCarthy, Charles A. Mayor, George Mill, Charles A. Moriarty, James A. Morrow, Leslie F. Mulford, Rudolph E. Muller, George T. Muellerschoen, Patrick A. McCarthy, Florence Q. McQuaide, John J. Owen, John Peoples, Eugene T. Pleibel, Joseph A. Rainville, Louis A. Saltzman, Otto D. Schaul, William Schleif, Morris Schwartz, John J. Shaw, George Sinnamon, Samuel C. Smith (by transfer from Blair County Society), John J. Stanton, Ernest J. Steves, Michael F. Sullivan, Alfred O. Tarrant, Alfred J. M. Treacy, Creighton H. Turner, David C. Vance, Jacob Walter, W. Warren Weaver, William L. Weber, Carl Weiland, Jr., Abraham E. White, LeRoy A. Wilkes, Louis Wolfson, Jonas Zettlemoyer, Ella Ridgway Ziegler, Philadelphia; Dorothy Child, Lawrence, Kan.; W. A. N. Dorland, Chicago; Charles J. Hunt, Clifton Springs, N. Y.; Ray Parker, Norristown (by transfer from Cambria County Society). *Death.*—Ralph R. Hollopeter (Medico-Chirurgical Coll., Phil., '12) of Philadelphia, at Asheville, N. C., March 12, from pneumonia, aged 29. *Removals.*—Russell S. Boles from Wynnewood (Montgomery Co.) to 53rd St. and Overbrook Ave., Wynnefield, Philadelphia; Matthew H. Cryer from Philadelphia to 140 S. Lansdowne Ave., Lansdowne (Delaware Co.); Walter Dick from Dagus Mines (Elk Co.) to Ramsaytown (Jefferson Co.); S. Finley Gordon from Middletown, Conn., to State Hospital for Insane, Howard, R. I.; J. Paul Frantz from Philadelphia to 108 N. Second St., Clearfield (Clearfield Co.); Kenneth S. Guthrie from New York City to 182 Monroe St., Brooklyn, N. Y.; Theodore W. O'Brien from Seattle, Wash., to Murray Hospital, Butte, Mont.; Ella M. Russell from Philadelphia to Chambersburg (Franklin Co.); George H. Shuman from Pittsburgh to 6221 Jefferson St., Philadelphia.

Schuylkill County: *New Members.*—William H. Barr, James A. Roth, Fountain Springs; A. M. Bergstein, James B. Heller, Pottsville; J. V. Burns, Coaldale; Michael C. Dewey, Girardville; Thomas J. McGurl, Elmer L. Straub, Minersville; D. Samuel Marshall, John F. Marshall, Ashland; Ella I. Rynkiewicz, Shenandoah; Robert F. Weaver, St. Clair.

Snyder County: *New Member.*—Edward C. Williams, Port Trevorton.

Somerset County: *New Members.*—Robert Heffley, Berlin; Albert F. Keim, Davidsville (by transfer from Indiana County Society).

Tioga County: *Death.* — Mahlon R. Pritchard (Coll. of Phys. and Surg., Baltimore, '80) in Westfield, February 23, aged 64.

Wayne County: *Transfer.*—Oscar J. Mullen to Lackawanna County Society.

Westmoreland County: *New Member.*—Norman L. Kerr, Scottdale (by transfer from Fayette County Society. *Transfers.*—W. E. Brown to Allegheny County Society; J. Stuart Lawrence to Philadelphia County Society. *Removal.*—Joseph M. Reed from Derry to 106 West 83rd St., New York City.

York County: *New Member.* — W. F. Gemmill York.

PAYMENT OF PER CAPITA ASSESSMENT

The *per capita* assessment for the year 1917 has been received from component county societies since March 10, as acknowledged on pages 446-447 of the March Journal, as follows:

Mar. 12,	Somerset	14–15	3857–3858	$ 5.50
	Wyoming	15–16	3859–3860	5.50
	Lycoming	62–70	3861–3869	24.75
Mar. 13,	Berks	76–88	3870–3882	35.75
	Columbia	36–39	3883–3886	11.00
Mar. 15,	Mercer	48–52, 54	3887–3892	16.50
Mar. 16,	Luzerne	83–99, 101–128	3893–3937	123.75
	Washington	67–80	3938–3951	38.50
	York	92–102	3952–3962	30.25
	Huntingdon	35	3963	2.75
Mar. 17,	Monroe	14–19	3964–3969	16.50
	Montgomery	109–118	3970–3979	27.50
	Northampton	75–96	3980–4001	60.50
	Allegheny	504, 619–630, 633–839	4002–4221	605.00
	Potter	1, 16–18	4222–4225	11.00
Mar. 19,	Delaware	55–64	4226–4235	27.50
Mar. 20,	Cambria	83–92	4236–4245	27.50
	Berks	89–93	4246–4250	13.75
	Westmoreland	93–98	4251–4256	16.50
Mar. 21,	Carbon	26–28	4257–4259	8.25
	Luzerne	129–138	4260–4269	27.50
	Clinton	14–16	4270–4272	8.25
	Tioga	1, 3–21	4273–4292	55.00
Mar. 22,	Lehigh	66–84	4293–4311	52.25
	Somerset	16–21	4312–4317	16.50
Mar. 23,	Bucks	48–55	4318–4325	22.00
	Luzerne	100, 139–144	4326–4332	19.25
	Clearfield	24–44	4333–4353	57.75
Mar. 24,	Jefferson	1–18	4354–4371	49.50
	Lackawanna	1–100	4372–4471	275.00
	Somerset	22–24	4472–4474	8.25
	Butler	27–41	4475–4489	41.25
Mar. 26,	Clinton	17–20	4490–4493	11.00
	Franklin	27–38	4494–4505	33.00
	Lebanon	14–20	4506–4512	19.25
	Luzerne	145–148	4513–4516	11.00
	Northumb'rl'nd	41–46	4517–4522	16.50
	Fayette	94–104	4523–4533	30.25
Mar. 27,	Indiana	1–59	4534–4592	162.25
	Berks	94–97	4593–4596	11.00
	Carbon	29	4597	2.75
	Blair	68–82	4598–4612	41.25
	Erie	44–100	4613–4669	156.75
	Philadelphia	1226–1400	4670–4844	481.25
	Northampton	97–106	4845–4854	27.50
	Venango	17–32	4855–4870	44.00
Mar. 28,	Union	14–15	4871–4872	5.50
	Columbia	40–43	4873–4876	11.00
	Montgomery	119–128	4877–4886	27.50
	Lycoming	71–79	4887–4895	24.75
	Chester	2–43, 45–64	4896–4957	170.50
	Wayne	12–21	4958–4967	27.50
	Erie	101–111	4968–4978	30.25
	Fayette	105–107	4979–4981	8.25
	Westmoreland	99–101	4982–4984	8.25
	Bradford	32–39	4985–4992	22.00
	Somerset	25–27	4993–4995	8.25
	McKean	1–22, 24–33	4996–5027	88.00
	Bucks	56–67	5028–5039	33.00
	Northampton	107–113	5040–5046	19.25
	Butler	42–51, 53–58	5047–5062	44.00
	Berks	98–100	5063–5065	8.25
	Cambria	93–96	5066–5069	11.00
	Northumb'rl'nd	47–59	5070–5082	35.75
	Montour	18–20	5083–5085	8.25
	Cumberland	27–29	5086–5088	8.25
	Lawrence	41–43	5089–5091	8.25
	McKean	34–37	5092–5095	11.00
	Schuylkill	1–93	5096–5188	255.75
	Lancaster	1–116	5189–5304	319.00
	Bucks	68–83	5305–5320	44.00
	York	103–111	5321–5329	24.75
	Indiana	60	5330	2.75
	Lycoming	80–81	5331–5332	5.50
	Erie	112	5333	2.75
	Potter	19	5334	2.75
	Somerset	28–30	5335–5337	8.25
	Mifflin	26	5338	2.75
	Bedford	17–18	5339–5340	5.50
	Armstrong	53–54	5341–5342	5.50
	Washington	81–82	5343–5344	5.50
	Clarion	32	5345	2.75
	Beaver	51–61	5346–5356	30.25
	Columbia	44	5357	2.75
	Northampton	114	5358	2.75
	Schuylkill	94–95	5359–5360	5.50
	York	112	5361	2.75
	Susquehanna	12–20	5362–5370	24.75
	Crawford	16–46	5371–5401	85.25
	Delaware	65–80	5402–5417	44.00
	Bradford	40–42	5418–5420	8.25
	Clearfield	45–64	5421–5440	55.00
	Lycoming	82	5441	2.75
	Montgomery	129	5442	2.75
	Bucks	84	5443	2.75
	Butler	52	5444	2.75
	Lancaster	117	5445	2.75
Mar. 29,	Carbon	30	5446	2.75
	Lehigh	85–97	5447–5459	35.75
	Luzerne	149–154	5460–5465	16.50
	Perry	6–11	5466–5471	16.50
	Franklin	39–41	5472–5474	8.75
Mar. 30,	Armstrong	55–59	5475–5479	13.75
	Clearfield	65–66	5480–5481	5.50
	Center	14–19	5482–5487	16.50
	Lackawanna	101–118	5488–5505	49.50
Mar. 31,	Tioga	22	5506	2.75
	Somerset	31	5507	2.75
	Fayette	108–109	5508–5509	5.50

	Lackawanna	119–125	5510–5516	19.25
	Berks	101–102	5517–5518	5.50
	Crawford	47	5519	2.75
	Luzerne	155–159	5520–5524	13.75
	Perry	12–14	5525–5527	8.25
Apr. 2,	Susquehanna	21	5528	2.75
	Elk	15–18	5529–5532	15.50
	Montgomery	130	5533	2.75
	Venango	33–34	5534–5535	5.50
Apr. 3,	Lancaster	118	5536	2.75
	Luzerne	160–161	5537–5538	5.50
	Blair	83–87	5539–5543	13.75
Apr. 4,	Jefferson	19–29	5544–5554	30.25
	Northampton	115	5555	2.75
	McKean	38	5556	2.75
	Somerset	32–33	5557–5558	5.50
Apr. 6,	Bradford	43	5559	2.75
	Venango	35	5560	2.75
	Lebanon	19 A–20 A	5561–5562	5.50
	Northumb'rl'nd	60–62	5563–5565	8.25
	Lycoming	83–84	5566–5567	5.50
	Erie	113–115	5568–5570	8.25
	Venango	36	5571	2.75
	Westmoreland	102–113	5572–5583	33.00
	Bradford	44	5584	2.75
	Warren	1–15	5585–5599	41.25
	Clinton	21	5600	2.75

STATE NEWS ITEMS

BORN

To Dr. and Mrs. Edwin C. Towne, Narberth, a daughter, March 3.

MARRIED

Dr. Willard C. Masonheimer and Miss Bessie Mae Otto, both of Allentown, March 14.

Dr. Alvin Erdreich Siegel and Miss Sara Margaret Irvine, both of Philadelphia, February 21.

Dr. Timothy M. O'Rourke and Miss Mabel Landers, both of Philadelphia, February 24.

DIED

Dr. Thomas Betts (Univ. of Pennsylvania, '66) in Philadelphia, March 8, aged 74.

Dr. Abraham M. Barr (Jefferson Med. Coll., '65) in Pittsburgh, February 15, aged 82.

Dr. George Glen Wood (Jefferson Med. Coll., '72) in Muncy, February 23, aged 68.

Dr. Robert H. Sykes (Univ. of Pittsburgh, '95) in North Warren, March 11, aged 51.

Dr. John S. Van Voorhis (Jefferson Med. Coll., '47) in Belle Vernon, March 16, aged 94.

Dr. Jacob H. B. Moore (Univ. of Pennsylvania, '70) in Philadelphia, in February, aged 71.

Dr. Michael J. Donnelly (Rush Med. Coll., Chicago, '70) in Mauch Chunk, March 11, aged 69.

Dr. Thomas J. Saltmarshe (Cooper Med. Coll., San Francisco, '76) in Philadelphia, in February.

Dr. John P. Treacy (New York Univ., New York, '62) of Pittsburgh, in Chicora, February 8, aged 78.

Dr. Daniel W. Bortz (Coll. of Phys. and Surg., Baltimore, '85) in St. Lawrence, March 4, from uremia, aged 61.

Dr. Philip Sack (Medico-Chirurgical Coll., Philadelphia, '13) in Philadelphia, November 5, from tuberculosis of the throat, aged 29.

ITEMS

Dr. Hobart A. Hare has resumed his college work and practice after being seriously ill.

Dr. Charles S. Hirsch has been elected urologist to the Jewish Hospital, Philadelphia.

Dr. Paul J. Pontius has been appointed visiting ophthalmologist to the Philadelphia General Hospital.

Dr. Francis C. Abbott, Philadelphia, has returned to France for another term of service on the war front.

The Home of the Merciful Saviour for Crippled Children, Philadelphia, receives a bequest of $30,000 by the will of the late Nannie D. Connaroe.

Dr. Luther C. Peter has been appointed professor of ophthalmology in Temple University to fill the vacancy caused by the death of Dr. Wendell Reber.

Mrs. J. C. Wilson, through Dr. Francis W. Sinkler, presented to the College of Physicians of Philadelphia, on April 4, a portrait of Dr. James Cornelius Wilson.

The Medico-Chirurgical Buildings will be spared temporarily for use if needed during the war. All the other buildings along the line of the Parkway are to be razed by June 15.

Dr. E. H. Siter, 1818 S. Rittenhouse Sq., Philadelphia, will be glad to answer inquiries regarding the Medical Reserve Corps of the United States Army, by letter or personally at his office between 10 and 12 a. m.

Dr. Blanca Hillman, Drexel Hill, Delaware Co., has offered to furnish the government with one hundred women doctors and college women trained to the last minute detail in all of the branches of first-aid and hospital service.

Dr. Edward W. Ryan, Scranton, formerly head of the American Hospital in Belgrade, has recently sailed for Salonika, Greece, on the invitation of the Serbian government, to reorganize the sanitary relief work north of that port.

Imprisonment for Abusing Hospital Staff.—William Kelley is said to have been sentenced to thirty days' imprisonment in the county jail for abusing a physician and an attendant, at St. Vincent's Hospital, Erie, where he was a charity patient.

The Threat of National Inefficiency from Ill Health was the subject of an address by Dr. Arthur T. McCormack, Bowling Green, Ky., before the College of Physicians of Philadelphia, March 29, the address being the first Mary Scott Newbold Lecture.

The Physicians' Motor Club of Philadelphia through its president, Dr. S. Leon Gans, has offered Mayor Smith a medical unit of one thousand well drilled and equipped physicians with motor cars to be used in case of need in or near Philadelphia.

Dr. C. Lincoln Furbush, Philadelphia, who went to Berlin last November to make an official inspection of the prison camps and hospitals in Germany, paying special attention to the treatment of prisoners and sanitation, returned last month with Ambassador Gerard's party.

Postgraduate Work.—The committee on medical education of the state society and the Board of Medical Licensure have advised hospitals to become centers for medical postgraduate work. The Abington Hospital, Old York Road, has begun a monthly series of clinics for the benefit of the Bucks County Medical Society and other physicians.

Enlarge Sanatorium.—The plan of Dr. Samuel G. Dixon, state health commissioner, of building twenty cottages on each side of the present sanatorium building at Hamburg, at a cost of $28,000, was tentatively approved by the House of Appropriations Committee, March 6. This will increase the capacity of the institution to 160.

War Medical Corps Unit.—Twenty-two university medical school graduates have enlisted in a University of Pennsylvania Medical Corps unit under the leadership of Dr. Edward Martin. Fifty nurses, numerous orderlies, attendants, Roentgen-ray men, dietitians and laboratory experts have also added their names to the list. Sufficient equipment is on hand to enable the hospital corps to take the field immediately.

Nurses Study First Aid.—Dr. Samuel G. Dixon announced on March 19 that each nurse in the service of the State Department of Health should immediately begin a course in emergency and first-aid work, so that previous training may be reviewed and made ready for any national crisis. The first-aid training will be given from Philadelphia, Harrisburg, Williamsport, Wilkes-Barre, Pittsburgh and Oil City.

War Training for Doctors.—At a meeting, March 29, of the medical council, composed of the faculty of the Medical School of the University of Pennsylvania, resolutions were passed urging that three months' service in a military training camp be made a requisite part of courses in medicine in all first class colleges to secure a diploma, and a mass meeting to boost preparedness and discuss military training was held by the students in the gymnasium, March 30.

Presbyterian Hospital of Philadelphia Offered as an Army Unit.—This offer was made by the trustees of the institution through the American Red Cross, at a meeting held recently. This is the second proposition made to the government by the Presbyterian Hospital in view of the present international situation. Recently the Richardson Home, at Devon, and the surrounding grounds was offered for the care and treatment of sick and disabled soldiers of the United States Army. The offer was accepted.

Woman's Court Opened.—The first women's court in the United States was opened, March 24, at Twelfth and Wood Streets, Philadelphia. The entire first floor of the building is devoted to the court room, where the women will be tried and where their cases will be studied by social workers and physicians for mental and physical defects. A medical clinic and a mental clinic have been provided under the direction of Dr. Frances C. Van Gasken of the Women's Medical College, and opportunity will be given to women physicians to work in these clinics.

Philadelphia Dentists are preparing to render war service, a special course of instruction for graduates being given. The course is held in the Evans Dental Museum and Institute of the University of Pennsylvania, Spruce and Fortieth Streets. The object will be to devise a standard course of instruction which the government will recognize in selecting men for the Dental Reserve Corps. Dean Kirk, Dr. S. H. Guilford and Colonel Page, U. S. Army, constitute a subcommittee of the Philadelphia Auxiliary of the Committee of National Defense.

Philadelphia Hospital Units.—Complete hospital units, including commissary as well as surgical equipment, have been formed in the University, the Pennsylvania, the German, the Episcopal and other Philadelphia hospitals. Should it be necessary, these units are prepared to take the field at once. The unit from Pennsylvania Hospital numbers 190 persons, including doctors, nurses and most of the attendants, and is under the direction of Dr. Richard H. Harte, 1503 Spruce St. The University unit is under the direction of Dr. Edward Martin, 1506 Locust St.

Dr. A. B. Hirsh, founder and for the past thirteen years editor of the *Weekly Roster* of the medical organizations of Philadelphia, has concluded to resign the editorship of that periodical. Although several societies had previously issued small monthly printed programs, it was largely Dr. Hirsh who developed the plan of systematized society medical newspapers throughout the United States, which has now become such a widespread means for organizing the profession. Under his direction the mailing list of the *Roster* has grown to 4,000 addresses; the paper officially includes forty-three societies and reaches all countries.

Medical Auxiliary for Defense Work.—The Philadelphia Medical Auxiliary of the Council of National Defense was organized at the Bellevue-Stratford, March 6. The committee is as follows: Dr. John H. Jopson, chairman; Dr. Charles A. E. Codman, secretary, and Drs. Richard H. Harte, Edward Martin, Robert G. LeConte, John M. Baldy, John B. McAlister of Harrisburg; George E. deSchweinitz, Ross V. Patterson, Frank C. Hammond, John H. Gibbon, Elijah H. Siter, Edward Kirk, Cyrus Lee Stevens of Athens; William Pepper, Seneca Egbert and Lieut.-Col. Henry F. Page, M. C., U. S. Army. To these will be added an officer of the Medical Department of the National Guard of Pennsylvania.

Local Physicians to Remove Recruits' Defects.—Major General Commandant George Barnett, Medical Corps, U. S. Marines, has written his official approval of the suggestion of Dr. John J. Gilbride of Philadelphia, that local physicians be appointed everywhere for each recruiting station of the nation's three war services to correct defects found in intended recruits. For the young men rejected in this section for enlistment in the army, navy and marine corps for physical defects (such as hernia, hemorrhoids, etc.), it has been arranged to send them to Dr. Gilbride for needed attention. Then, after successful operation they are returned to the recruiting station for possible acceptance. Dr. Gilbride asks the assistance of other surgeons and hospitals who thus would be willing to treat such patients without compensation. The secretary of each county medical society throughout Pennsylvania is appealed to so as to have the local profession act promptly. Everyone can help, men being so urgently needed by the government. So as to increase the efficiency of this service Dr. Gilbride requests that he be supplied by each physician with the number of would-be recruits so treated, and the diagnosis in each case. The American Medical Association and the various state medical societies will be appealed to in furtherance of the movement.

State Pharmaceutical Board Powers.—Attorney-General Francis Shunk Brown has rendered an opinion to Lucius L. Walton, secretary of the State Pharmaceutical Examining Board, in which he defines the duties of the board relative to ascertaining the fitness of applicants for certificates that would qualify them as druggists in the state. That full power is given the board is shown by the following: "To justify the granting of a certificate of competency to carry on said business, the said board should be satisfied and convinced beyond a reasonable doubt that the applicant therefor has had the required practical experience. The board itself must be satisfied on that point. The evidence adduced in proof thereof should be of that amount and credibility sufficient to produce the belief and lead the board to adopt the conclusion that the applicant has in fact had the necessary experience to entitle him to a certificate. Such a fact is a matter susceptible of definite and ordinarily easy proof. It rests with the board in all cases to pass upon the question and adjudge whether, in credibility and other adequacy, the evidence to prove this essential fact measures up to the provisions and requirements of the act that it be 'satisfactory evidence.' You are accordingly advised that under said act, the power and duty belong to the said board to find and determine from the evidence produced by an applicant for a certificate of competency to carry on the retail drug and apothecary business whether or not the applicant has had the practical experience in said business required to entitle him to such certificate, and that a certificate is properly refused where such evidence is not 'satisfactory evidence' to the board in proof that the applicant has had the requisite experience."

GENERAL NEWS ITEMS

Dr. Joseph I. France, Baltimore, is the new junior member from Maryland in the United States Senate.

The National Conference of Charities and Correction will hold its forty-fourth annual session at Pittsburgh, June 6-13. For program address the secretary, Dr. William T. Cross, 315 Plymouth Court, Chicago.

The New American Women's Hospital for Officers in the West End of London, was opened March 21. It will care for fifty patients and was equipped by American Women in London. The largest ward is named the Philadelphia Ward.

The American Pediatric Society will hold its twenty-ninth annual meeting at White Sulphur Springs, W. Va., May 28-30. For program and other particulars address the secretary, Dr. Howard Childs Carpenter, 1905 Spruce St., Philadelphia.

Council on Pharmacy and Chemistry.—During March the following articles have been accepted for inclusion with New and Nonofficial Remedies: Ferric cacodylate (non-proprietary); iron cacodylate ampules, 0.03 gm., Mulford, H. K. Mulford Company; ampules iron cacodylate, 0.03 gm., Squibb, E. R. Squibb and Sons.

The Will of the Late Dr. Stacey B. Collins, Seaford, Del., was probated March 5. Among the bequests is $10,000 to the Pennsylvania Hospital, Philadelphia, to establish beds in the name of Hannah West Collins; $10,000 to the Society of New York Hospital, New York City, for beds in the name of Stacey B. Collins; $10,000 to the New York Academy of Medicine and $10,000 to the authorities of New York State for medical research.

Military Medicine.—Instruction in military medicine to students of the medical school of Harvard University, Tufts College and Boston University was begun March 21. Lectures will be given three times a week until June by Lieut.-Col. W. P. Chamberlain, of the medical corps of the army, and by Surgeon G. F. Freeman of the medical corps of the navy.

Antidrug Bill.—The Whitney antinarcotic bill was endorsed by representatives of the New York State and New York County Medical societies and of the Medical Economic League at a hearing, March 22. The bill provides for a free supply of drugs for addicts and for the registration of addicts. Some objection was made to the triplicate order blank system of checking narcotic drug distribution. This part of the bill is under consideration with a view to evolving some plan which will not work undue hardship on practicing druggists.

Red Cross Plans.—In a recent statement the American Red Cross told of its preparations to serve the army in case war with Germany is declared. It already has enrolled for active service nearly three thousand graduate nurses and over one thousand doctors and surgeons; in addition over four thousand women who have elementary instruction in hygiene and home care of the sick are available as nurses' aids. Twenty-six base hospitals, of five hundred beds each, have been organized in various cities, twenty of which are now ready for service, completely equipped and fully manned.

Danger of Fly Poisons.—*The Journal of the Michigan State Medical Society,* March, 1917, published a table showing cases where children had been poisoned from arsenical fly destroyers, reported in the press and collected through the agency of press clipping bureau this last year:

1916	Total	Fatal	Recov. Doubt.	Recov. Indicat.
March	1	..	1	..
June	1	..	..	1
July	11	5	1	5
August	16	3	1	12
September	3	2	..	1
October	4	2	..	2
	36	12	3	21

The cases occurred in the following states: California, 1; Illinois, 9 (3 fatal); Indiana, 1; Iowa, 3; Michigan, 1; Minnesota, 5 (2 fatal); Montana, 1 (fatal); Missouri, 2 (1 fatal); North Dakota, 2 (fatal); Nebraska, 3 (1 fatal); Pennsylvania, 4 (1 fatal); South Dakota, 1; Vermont, 1; Wisconsin 2 (1 fatal).

The United State Public Health Service has taken cognizance of the dangers of poisonous fly papers. The following is extracted from Supplement No. 29 of the *Public Health Reports:* "Of other fly poisons mention should be made merely for the purpose of condemnation, of those composed of arsenic. Fatal cases of the poisoning of children through the use of such compounds are far too frequent, and owing to the resemblance of arsenical poisoning to summer diarrhea and cholera infantum, it is believed that the cases reported do not by any means comprise the total. Arsenical fly-destroying devices must therefore be rated as extremely dangerous and should never be used, even if other measures are not at hand." There seems to be no sufficient reason for permitting the unrestricted sale of arsenical fly destroyers and it would be well if other states followed the lead of Michigan in this and regulated their sale.

Practices of Reserve Medical Officers in Time of War.—*To the Editor:*—Should the country ever be engaged in war, the Medical Department of the Army, in calling reserve officers to the colors, wishes to cause as little hardship and sacrifice to the reserve medical officers as may be consistent with the needs of the country. With this end in view, the department desires that you bring to the attention of the profession at large the necessity of the city, county and state medical societies organizing for the purpose of taking care of the practices of the officers of the reserve who respond to a call for service. In England this plan has proved of great benefit. The idea of the department is that the profession should organize on a similar basis. For example, should Dr. Jones be called to the colors, the local medical society, through its members, would take care of his practice during his absence. On his relief from active duty, his practice would be returned to him intact. Such a plan will cause no unnecessary hardship on the officer responding to a call for service, while the absence of such a plan would penalize the officer who gives his service to the country in a crisis. The department appeals to the patriotism of the profession to protect the interest of those of the profession who may be called to duty in war.

Robert E. Noble, M.D., Washington, D. C.
(For the Surgeon General.)
Major, Medical Corps, U. S. Army.

BULLETIN EXCERPTS

THE BULLETIN, ERIE

Public Health.—The Erie County Medical Society, following the plan of the American Medical Society of which it is a branch, will devote its regular April meeting to the education of our citizens in matters pertaining to public health. Erie has been remarkably apathetic along health lines. As a community, it does not realize that public health is a purchasable commodity and that if public health is to be efficiently administered sufficient money must be spent to take care of the expenses of administration. During the past year many lives have been lost in Erie from easily preventable causes. The death rate among little children has been appalling. An epidemic of measles and whooping cough swept over our city last year killing fifty-five children who today should have been growing up, a pleasure to their parents and a pride to the community. In addition to this, 148 children under 5 years of age died from pneumonia and diarrhea, a majority of which were easily preventable. Last year there were 2,245 living births in Erie and at the end of the year 255 of these babies were dead, an infantile death rate higher than that of New York City. When the memorable flood of 1915 swept over our city, killing thirty-six people, public opinion demanded an immediate remedy for this terrible catastrophe, and council has issued bonds to more than a million dollars to prevent a recurrence of this loss of life and property. Not one voice has as yet been raised to prevent the recurrence of loss of child life in Erie and not one penny extra money has been raised by public or private means for this reason. It is for this cause that the medical society, knowing these facts, desires to bring it to the attention of the taxpayers and to beg their assistance to prevent such a needless loss of life in 1917.

"Safety First."—There should be an act of councils prohibiting breakneck speed and reckless driving of ambulances. It is a common sight to see an ambulance dash by at 50 miles an hour. The lives of children and pedestrians, as well as that of the patient himself, are endangered by such driving. It is probably never necessary to exceed a speed of 25 miles per hour. Many large hospitals still use the horse drawn ambulances. Their speed is certainly less than 25 miles an hour. Our ambulance drivers seem to throw all caution to the winds and engage in driving that were they any place but on the front seat of an ambulance, would bring them before the court in a hurry.

BOOKS RECEIVED

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

Textbook of Surgical Operations. Illustrated by Clinical Observations, for Physicians and Students. By Prof. Fedor Krause, Privy Medical Councilor, Directing Physician, Augusta Hospital, Berlin, in association with Emil Heymann, M.D., Chief Physician, Augusta Hospital. Translated into English and edited for American readers by Albert Ehrenfried, A.B., M.D., F.A.C.S., First Assistant Visiting Surgeon, Boston City Hospital; Junior Assistant Surgeon, Children's Hospital; Surgeon, Boston Consumptive's Hospital. In six volumes. Volume II: With 373 Illustrations in two or more colors. Price, $7.00. New York: Rebman Company.

BOOK REVIEWS

THE SURGICAL CLINICS OF CHICAGO. Vol. I, No. 1 (February, 1917). Octavo of 221 pages, 83 illustrations. Published bi-monthly. Price per year, Paper, $10.00; Cloth, $14.00. Philadelphia and London: W. B. Saunders Company.

The present volume is a continuation of the idea which first led to the publication of Murphy's Clinics, and will be a substitute for them and represent the work of various prominent Chicago surgeons. The contributors and titles of the present number are as follows: Dr. A. D. Bevan, Gallstone Disease; Diaphragmatic Hernias. Dr. A. J. Ochsner, Goiter; Femoral Hernia; Hernias in Children. Dr. E. Wyllys Andrews, Fracture of the Patella; Case 1, Operation for Large Web Binding Arm to Thorax; Cases 2 and 3, Flap Methods and Abdominal Skin Pockets versus Thiersch Grafts After Hand Injuries. Dr. L. L. McArthur, Gastric Surgery. Dr. Dean D. Lewis, Neurolysis; Bleeding Nipple; Congenital Pyloric Stenosis. Dr. Carl Beck, Acute and Chronic Bone and Joint Infections; Large Cavities After Empyema. Dr. Allen B. Kanavel, Exstrophy of the Bladder with Double Inguinal Hernia; Complete Defect of the Abdominal Wall; Spina Bifida. Dr. D. N. Eisendrath, Head Injuries; Carcinomatous Ulcer. Dr. Kellogg Speed, Tendoplasty for Wrist-Drop. Dr. Samuel C. Plummer, Calculous Anuria. Dr. Edwin W. Ryerson, Ankylosis of Elbow. Dr. D. B. Phemister, Echinococcus Cyst of the Liver; Central Fibroma of Mandible. J. M. W.

CLINICAL TUBERCULOSIS. By Francis Marion Pottenger, A.M., M.D., LL.D., Medical Director, Pottenger Sanatorium for Diseases of the Lungs and Throat, Monrovia, Calif.; with a chapter on Laboratory Methods by Joseph Elbert Pottenger, A.B., M.D., Assistant Medical Director and Director of the Laboratory of the Sanatorium. Volume I has 105 Text Illustrations and Charts, and 6 Plates in Colors. Volume II has 62 Text Illustrations and Charts and 4 Plates in Colors. St. Louis: C. V. Mosby Company, 1917. Price, $12.00.

Dr. Pottenger has prepared a very complete and comprehensive treatise on pulmonary tuberculosis, in which he covers every detail of the subject. In addition to the usual index arranged alphabetically there is a prospectus in front of each volume where each chapter is analyzed. This will add greatly to the value of the work for reference purposes. Volume I is devoted to Pathological Anatomy, Pathological Physiology, Diagnosis and Prognosis. Under Diagnosis the author places stress on the value of palpation and percussion and gives several original drawings to explain lagging, change of tone and trophic changes in the soft tissues over the affected lung. He gives precedence, under methods of diagnosis, to clinical history and physical examination. In the order of their importance the most valuable other aids in diagnosis are sputum test, tuberculin test and Roentgen ray. The chapter on the use of the Roentgen ray in diagnosis is very conservative and will be disappointing to many enthusiasts in the subject. The chapter on laboratory findings is well written and the student will find many helpful suggestions regarding technic and correlation of results.

Volume II is devoted to Complications and Treatment. Under the heading Spontaneous Pneumothorax Dr. Pottenger calls attention to the frequency of this complication occurring in the nontuberculous and in early tuberculous cases. This reconciles his later statement that this is not a serious complication and often he has seen the patient better after the occurrence. He states that 10 per cent. of his advanced cases experience this complication but does not mention any of these bettered by the rupture in the lung. Heliotherapy and Artificial Pneumothorax are taken up in separate chapters and their importance emphasized. The author still believes in tuberculin for all cases despite the fact that most authorities have grown lukewarm in its use. He warns the inexperienced about using this treatment in acute conditions associated with fever but believes that with proper judgment it may do good even in these cases. He sums up the treatment in the words, "Intelligent medical guidance and faithful cooperation of patient." At the close of the second volume there will be found a Clinic, in which thirteen cases, nine of which were fatal, are studied with all the clinical data, including temperature chart for the period under treatment. Autopsies are added where they were obtained and the series is very instructive as portraying the many phases of the tuberculous process. A. A.

Pneumonia: It was not a sudden inspiration but a slowly growing conviction that the best care of the patient, the best stimulus to the heart required cold, drifting fresh air and lots of it.—W. P. Northrup, *Therapeutic Gazette.*

Atropin, formerly used empirically for shock, it now seems has a scientific basis. It contracts the blood vessels in the splanchnic area while dilating those in the peripheral portions.—*Indianapolis Medical Journal.*

SOCIETIES

SECTION ON GENERAL MEDICINE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA

Meeting of Monday, Feb. 26, 1917, at 8: 15 P. M.

Dr. Clifford B. Farr, Chairman of Section, presiding.

A Case of Epidemic Spinal Meningitis; Recovery Following the Use of Antimeningococcic Serum. Dr. C. B. Kendall (by invitation): The patient, a warehouseman, aged 22, was seen on the service of Dr. Riesman at the Philadelphia General Hospital. He was admitted at 5: 30 p. m., Feb. 1, 1917, on the second day of an illness which had come on very acutely with severe pains in the neck, head and legs, rigidity of the neck, delirium, fever (101 to 102), infrequent urination, etc. Prior to admission a definite diagnosis of cerebrospinal fever had been made by Dr. Riesman. Immediate lumbar puncture was done with withdrawal of 30 c.c. of spinal fluid, containing diplococci; headache much relieved. A few hours later a second lumbar puncture was done when 20 c.c. of spinal fluid were removed and 30 c.c. of antimeningococcic serum injected. The fever dropped and after this, temperature was never above normal. Patient developed severe cramp in legs and the severe headache continued. Next morning he was cyanotic and dyspneic. Lumbar puncture was again done when 30 c.c. were removed under very great pressure; the fluid was very turbid. Immediately the patient regained consciousness and felt very much better. On the third day at 11 a. m. the patient became restless and nervous and the headache returned. Lumbar puncture was done but only a small amount of fluid withdrawn; 30 c.c. of serum were injected; he cried out with pain in legs. At 11 p. m. there was severe headache with pains in legs and sleeplessness. Forty c.c. of bloody fluid were withdrawn, when the patient immediately became quiet, fell asleep and slept until 8 a. m. Headache and pain in back were not so severe, but patient was restless and cried out for doctor and nurse. On the fourth day 30 c.c. of slightly turbid fluid were withdrawn. On the fifth day the patient was much better; on the sixth complained of hunger; neck was not so rigid; slept well that night; on the seventh could straighten out legs without pain and slept without opiates. On the eleventh patient was out of bed; felt well; could not completely flex head on chest. From the eleventh to sixteenth he convalesced very rapidly but was weak and emaciated. On the sixteenth he asked to be discharged. Examination showed no rigidity of neck muscles; no pain or headache. Tendon and skin reflexes normal; no Babinski; pupils react to light; some stiffness of left leg. Urine normal. When I saw the patient on admission I scarcely thought he would get well, and the next morning I was sure he was going to die. I have never seen anything work so remarkably as did lumbar puncture in the immediate clearing up of this case.

Dr. James E. Talley, in discussing: The case recalls one in my service at the Methodist Hospital last winter in a boy of 15, which was much the same type. Fortunately, he also recovered completely. I can certainly subscribe to Dr. Kendall's statement concerning the influence of lumbar puncture on the general comfort and the clearing up of the condition. I have been impressed within the last year or two with the use of lumbar puncture in other conditions. A boy with meningitis, probably tubercular, recently admitted to the hospital, was highly excited and noisy but presented an absolutely different picture as soon as lumbar puncture was done. This added very much to his own comfort and to that of those around him. I have been interested in reports which we get from the clinics of employment of lumbar puncture in delirium tremens and in the delirium of pneumonia. I have had no experience with it in the former, but certainly in the delirium of pneumonia it has added to the comfort of the patient.

Dr. E. J. G. Beardsley: Dr. Robert Pratt, chief resident physician of the Jefferson Medical College Hospital, informs me that he discharged from that institution last week two children who had made a satisfactory and complete recovery from this disease. The serum treatment was given and the effect was startling in its apparent efficiency. We now have two additional cases in the isolation ward being treated by use of the serum. One child has done well, having been treated early in the disease, while the other child came to the hospital late in the disease and the serum has not brought about any noticeable remission in the symptoms. One must not forget that lumbar puncture alone will often cause great improvement in the symptoms and this method may be used with safety and benefit in the absence of a supply of serum. I should like to ask Dr. Kendall whether corneal anesthesia was present in his patients. I remember that this sign was considered a valuable aid to diagnosis at the Municipal Hospital.

Dr. Kendall: There was corneal anesthesia in this case.

Dr. Clifford B. Farr: This case was very striking on account of the very sudden onset and equally rapid recovery.

Fixed Ideas in Medicine. Dr. Daniel M. Hoyt: The importance of the psychic factor in treatment and diagnosis is commonly underestimated. This is in part due to the marked materialistic tendency of the medical viewpoint today. It is important that the internist's view be broad and unbiased, that the over-zealous enthusiasm of some specialists may be counterbalanced. The time is approaching when the so-called psychological phenomena and their definite relation to human physiology will be realized. The subject is important because a knowledge of it on the part of the physician tends to disarm the quack and the so-called irregular.

The importance of a study of the expectant attention is emphasized as definitely affecting results in a disease. Medical men acquire set methods of thinking. There is an habitual expectant attention. Each patient also possesses individual habits of thought. Their minds are aiming toward various goals. The viewpoint of the physician influences the direction of the expectant attention of the individual and this influence exercises a definite effect on the body in increasing or decreasing its resistance to disease. The work of Cannon is cited as showing the importance of the emotions in producing marked physiological changes. The definite effect of depressing influences in hospitals on resistance to disease is illustrated. The power of the physician to influence the expectant attention of his patient toward health or toward chronic invalidism is emphasized. The importance of classifying temperaments as well as disease conditions is shown. The effect of the expectant attention in case of patients suffering from hypertension is particularly emphasized. The writer concludes that accurate diagnosis is the foundation stone of rational therapy. This diagnosis must include the man as well as the disease. Each individual has certain fixed habits of thought, and these should receive the same careful analysis as is given to the physical and laboratory findings in a given case.

Dr. E. J. G. Beardsley, discussing: The subject of Dr. Hoyt's paper and his method of presenting it have interested me greatly. I recently saw an example that illustrated well the important influence of unpleasant impressions on the mental and physical condition of patients. I had occasion to accompany a friend to the operating room. He was a medical man and thoroughly impressed with the necessity for, and the advisability of the operation. When he left his room for the operating room he was in a pleasant and contented frame of mind. As we reached the room where the anesthetic was to be administered there was wheeled by us from the operating room the body of a man recently operated on, the bandages about whose head and neck were stained with blood. My friend, who was a surgeon, and who had seen such sights many times, was nevertheless visibly affected by the sight. Despite his obvious effort to overcome the fear aroused within him he received the ether vapor badly and as a result struggled and fought until large quantities of ether were used. I have seldom seen a more marked example of change of mental attitude in any reasonable patient by psychic effect.

What Dr. Hoyt states concerning the disastrous physical and mental effects of frequent deaths in the wards on the remaining patients can be observed daily at the Philadelphia Hospital. A patient's physical condition may seem excellent when he enters the wards and a fair prognosis made as to time but after this patient has witnessed a number of deaths in the ward one often notes a rapid physical degeneration that is striking. Dr. Hoyt has given us a most valuable paper. He has made us think anew of matters that we are all too likely to forget.

Dr. James E. Talley: It is to be hoped that Dr. Hoyt is right and we are on the threshold of a new era. In fact the work of the clinician has become so complicated that making a diagnosis often has become so time-consuming that both patient and physician are wearied before they reach a discussion of the treatment. Under such circumstances it is no wonder that the average physician overlooks the psychic element in treatment.

Respecting the administration of hospitals, there might well be an anoci-association of medicine as well as surgery. Having had occasion to enter a hospital as a patient I had opportunity to study the administration from the patient's viewpoint. All the unsatisfactory and unpleasant things about institutions can be rectified but usually the matter comes right down to the question of money. It usually means more workers, a better grade of workers. It needs a high-grade person at the front door to make every comer satisfied and send him away feeling right. In hospitals we need people with the idea of service to his fellow man in life rather than those with the trade-unions' eight-hour idea. A death in the ward even when the patient is screened cannot help but have an unfortunate influence on some of the other patients. It is a good thing when a trustee occasionally happens into a ward under such circumstances. I know of one instance recently where the room reserved for such patients had temporarily been used for other purposes, but a trustee on witnessing a death in the ward said, "Use any room in the house that is vacant for such people. Such a sight as this before these people must not happen again."

Dr. Charles M. Montgomery: Dr. Hoyt and Dr. Beardsley have spoken of deaths occurring in the wards. I recall an instance occurring, within a couple of years, in one of the finest hospitals in this city in the service of one of the best men who was accustomed to make the rounds of the wards exhibiting patients and discussing their cases. On this occasion a patient was exhibited one day and a few days later this patient's organs were exhibited in the same ward before all the patients. This goes to show how easy it is to get careless in hospital routine in regard to patients' feelings and sensibilities.

Dr. W. M. L. Coplin: This paper is timely. Every observer must be impressed by the indubitable evidence of an intimate relation between cardiovascular stress and emotional influence. Some years ago five individuals in a commonwealth were accused of something of which they may or may not have been guilty; three of the five died. It may be recalled that in a financial crash in Wall Street seven directors were publicly pilloried, four are dead. While death probably occurred from different causes, there can be no doubt that the cardiovascular stress was intensified by concurrent psychic phenomena. Every one who has children sees this psychic influence illustrated in attacks of indigestion; there are children who are sick before every party. If there is a party to which a number of children in the family are going it will be found that one child sickens before the emotional dietetic debauch that accompanies such functions. The psychic influence on digestion has been brought out by Hawk, Canon and others. Hawk in the Jefferson Laboratories has investigated the influence of examinations on gastric function. We know that retinal fatigue and perception are influenced by emotion. The psychic influence is an element too carelessly cast aside. There are few, if any, successful forms of quackery for which the medical profession is not responsible by neglecting the elements on which successful fraud has built. This is true of massage; every doctor knows of this neglect. In one form or another the psychical relations have been overlooked or underestimated; an opening is thereby afforded to all forms of quackery, deception and fraud now well known and constantly practiced, including Christian Science, psychotherapy, and allied cults.

Dr. Clifford B. Farr: Some years ago I saw a neurotic patient, in consultation with her father who was a physician of 75 or 80 years. The daughter had an attack of precordial pain associated with high blood pressure for which I administered nitroglycerin hypodermatically. The father took out his watch, and said impressively, "In twenty minutes we shall see the effect of the drug." Surely enough we did. I suppose this effect was in part psychic.

Dr. Hoyt, closing: I have been greatly pleased that this paper should have caused discussion. I had expected to hear more adverse criticism. It is important that this subject be treated conservatively. The importance of the psychic factor in the treatment of cases of hypertension has been brought out in the discussion.

Some years ago I was doing experimental work in the Pharmacological Laboratory of the University of Pennsylvania. We were studying the effects on blood pressure of a complex amin found in ergot called tyramin. The effects of this substance in the lower animals are very powerful, causing a marked rise of blood pressure. Later Dr. Lucius Tuttle of the Jefferson Medical School and I did some experiments on the human being. I took repeated doses of 10 mg. The blood pressure was taken by Dr. Tuttle at varying intervals. But in our first experiments I knew when I was taking the drug. There was a distinct rise of blood pressure, averaging from 10 to 15 mm. Before publishing these results I had some correspondence with Dr. H. H. Dale and Dr. W. E. Dixon of England, who had already published some results that tallied very well with ours. Dr. Dale wrote me that he believed that his results were entirely due to the psychic factor, and that in this dose, when taken by the mouth, tyramin had little or no effect on human blood pressure. We then repeated our experiments, changing our technic so that the subject did not know whether he was taking plain water or the drug. Under these conditions we found that it required from 50 to 100 mg. to produce any effect, and these effects were rather doubtful. Our attention had been fixed on the fact through laboratory experimentation that this drug would cause a rise of pressure and this fact had a definite physiological effect. This paper on "Tyramin" was published in the Transactions of the College of Physicians, Third Series, Vol. XXXIII, 1911, and also in the *American Journal of Medical Science.*

Experimental and Clinical Studies of the Toxicity of Dioxydiamido-Arsenobenzol-Dichlorhydrate. Dr. Jay F. Schamberg, Dr. John A. Kolmer and Dr. George W. Raiziss (by invitation): Within the past five years an enormous number of publications have appeared on the clinical results of the administration of dioxydiamido-arsenobenzol-dichlorhydrate marketed under the name of salvarsan. The accumulated experience on this subject has established the fact that this drug is the most remarkable synthetic chemical compound in medicine and is the premier remedy in syphilis and certain other affections. Although aresno-compounds were first produced by Michaelis it remained for the genius of Ehrlich to build up the remarkable substance which we know as salvarsan. The present studies were undertaken with the view of shedding additional light on the toxicity of salvarsan, and we submit the following conclusions:

1. Salvarsan may be used in concentrated solutions up to 0.6 gm. in 10 c.c. *in animals,* without evident increase of toxicity.

2. The failure to neutralize solutions of salvarsan with alkali leads to an increase in toxicity of 50 to 60 per cent. in solutions of ½ to 1 per cent. concentration.

3. The addition of a moderate excess of alkali beyond the amount required for neutralization does not increase the toxicity, as determinable by the duration of life of the experimental animal. It is possible, however, that it may have other untoward effects.

4. The use of sterile fresh distilled water appears to possess advantages over sterile stale distilled or nondistilled water as regards toxicity, although the difference in our experiments was not pronounced.

5. Salvarsan in alkaline solution tends to undergo

oxidation on standing, with consequent increased toxicity, but this substance and its congeners vary considerably in the rapidity of oxidation and in the degree of associated toxicity. The drug should be used reasonably promptly after preparation. If a delay of two or three hours is unavoidable, the solution should be kept in a cylinder, full to the stopper, so that no air is present.

6. Several different types of reactive symptoms may occur after the use of salvarsan, (*a*) immediate; (*b*) early and (*c*) delayed. The immediate symptoms are due to a paresis of the blood vessels; the early symptoms coming on a few hours after the injection are febrile and gastro-intestinal, and the delayed symptoms may be referable to the brain or the liver and gastro-intestinal tract.

7. There is no one cause of reaction. The etiologic factors in the production of reactive phenomena may be related to (*a*) the patient, (*b*) the technic and (*c*) the medicament. We believe that the most important factor in the causation of reactions is referable to the drug. We believe that the immediate vasoparetic reactive symptoms are due to traces of an unidentified impurity in the drug, which we have for convenience termed substance X. We are confident that these symptoms are not due to "arsenoxid."

9. Salvarsan and its congeners are not compounds of absolute chemical purity. We cannot, therefore, expect absolute constancy in biological effects.

10. Salvarsan and its congeners may vary, within certain limits, in therapeutic effect, and to a greater degree in toxicity. The ampules obtainable in the open market exhibit striking variations in toxicity.

11. Even the poorest compounds, however, are tolerated by animals in much higher amounts than the maximum dose administered to man, so that there is nearly always a latitude of safety.

12. We believe that the commercial products should be tested out intravenously as well as subcutaneously, and that they should be tolerated by rabbits in the dose of 60 mg. per kilo of body weight.

13. Salvarsan is a safer substance than mercury and can be tolerated intravenously by white rats in fifty times the dose of the latter, weight for weight.

Dr. John A. Kolmer, discussing: According to our experiments if the solution be quickly injected it is likely to have a more toxic effect than when injected slowly. Therefore in the administration of the solution to the human I would employ the slow injection because of the lower toxicity.

Dr. George W. Raiziss: I would emphasize the fact that arsenoxid is described by Ehrlich and his confreres as exceedingly poisonous and was regarded as being primarily responsible for the toxicity of salvarsan. We had a suspicion always that this substance was not so important in the question of the toxicity of salvarsan. Indeed, our investigations showed that arsenoxid is not the substance responsible for the toxicity of salvarsan. Examinations of different drugs which were clinically very toxic showed that there was no arsenoxid present. Arsenoxid differs from salvarsan in having only one atom more of oxygen than salvarsan. I regard these investigations, particularly concerning the toxicity of arsenoxid and its presence in salvarsan, of great theoretical and practical importance.

E. J. G. Beardsley, Clerk.

COUNTY SOCIETY REPORTS

BERKS—MARCH

At the meeting of the Berks County Society, March 13, Dr. M. L. Huyett read a paper on "Etiology and Treatment of Nasal Catarrh." When we seek to discover what is meant by catarrh we find that it applies to almost any chronic nasal abnormality, but especially to one accompanied by some form of discharge, either anterior nasal or postnasal, varying from a nearly normal secretion to the most extreme ozena. Any disturbance of the proper secretory balance, of course, results in an unnatural secretion of the nose, which, with the inevitable infection, produces what the patient calls catarrh.

A very large percentage of adults and schoolchildren in the primary grades especially, suffer from some form of nasal infection, the neglect of which is the cause of more trouble than is generally recognized. Such trouble not only includes obvious local damage, such as deafness and sinus disease, but toxemia, rheumatism, ocular and gastro-intestinal disturbances, not so easily traced to their source. No case of self-diagnosed catarrh should be dismissed lightly or as trifling until a determination of the amount of actual pathological changes has been made. This can be done with sufficient accuracy by any one with a good knowledge of general medicine, plus enough special training to make an average rhinological examination.

The chief predisposing factor in catarrh is an obstructive lesion of the nasal septum, which predisposes to the local growth of pathogenic bacteria and the development of their toxins. I dare say there are very few patients that have submitted themselves to the rhinologist for examination, into which this factor did not enter, the condition being either hereditary or acquired. The septum deviating either to one side or the other, impinging or closely approximated to the inferior or middle turbinated body, thus interferes with drainage or ventilation of the nasal passages and accessory sinuses. When the anterior portion of the septum is thus deformed it obstructs the respiratory passages, and each descent of the diaphragm acts like the piston valve of a syringe and rarefies the air in the nasal chamber posterior to the obstruction. The negative pressure thus created causes the blood to fill the vascular tissue of the swell bodies on the inferior and middle turbinals, hence the stuffiness of the nostrils. Furthermore, the mechanical irritation caused by the pressure of the ridge or other deviation against the turbinals still further aggravates the irritation and swelling of the mucous membrane, thereby changing the quantity and character of the secretions. Inquiry into the history of the patient usually elicits the fact that he has been inclined to chronic rhinitis, as well as acute exacerbations of a chronic rhinitis; on examination you will find a septal deformity present. Septal deformity may, however, not always be present, hence each case should be studied for its peculiar etiological factors, so that the treatment for the ultimate cure and prevention of the acute exacerbation may be intelligently directed.

Another common cause of catarrh or chronic rhinitis is a vasomotor disturbance of the nasal passages caused by irritations derived externally or through the circulation, pollens being the most common external sources, and diabetes, rheumatism, acidosis and other acquired blood dyscrasias being of the internal sources of irritations; the lack of balance of the vasomotor nervous system may also be due to the inadequate ventilation of our living and sleeping rooms, offices, school rooms, etc., or to our wearing apparel. The removal from the country to the city is often followed by attacks of rhinitis.

In the etiology of rhinitis hygiene is one of the first considerations. Hygiene of the body as well as of the home, offices, schools and other public buildings. Under hygiene of the body we must look well to our eliminative organs and digestion, keeping the skin active and bowels regular, thereby lessening the chances of an anti-intoxication. The body should be well protected but not overburdened with clothes, so that radiation is assured. Dr. Huyett said that he would suggest, possibly advocate the same weight of underwear, especially in our climate, all the year round, increasing the top clothing as to weather conditions. The air in a room and building should be changed often in order to maintain the proper humidity. The average humidity of a room should be from 40 to 60 per cent. Benjamin Franklin in his essay says that "colds result neither from wet nor cold, but from other causes entirely independent of this malady." Robert Peary in his diary states that none of his party developed a "cold" in their dash to the North Pole, but they all were attacked a few days after they returned to the settlement.

The foregoing is only to show how easy it is to precipitate an attack of inflammation, under appropriate conditions, and inflammations are most always of a bacterial nature, the condition necessary for the growth of the bacteria being a lowered vitality of the cells of the tissues. Trauma, chemical injury and shock also lower the cell vitality and prepare the tissues for infection and inflammation. All conditions local and general, which lower the resistance of the mucous membrane of the nose, act as predisposing causes to infection and inflammation of the nasal mucous membrane. Dr. Huyett emphasized the fact that in many instances the chief predisposing cause is an obstructive lesion of the septum. Rhinitis or catarrh undoubtedly has an infectious origin, and the foregoing etiological factors predispose to the infection. Nasal polypi and other morbid processes within the nasal chambers also are predisposing factors.

It thus becomes a question of differentiation. If the patient's general metabolism is faulty, this must be corrected, whether local measures are employed or not. It is rare, however, to find a nasal infection, other than a luetic one, that will yield to general therapeutic measures alone. Long established infections and local tissue changes usually make it impossible to eliminate the disease without direct attention to the parts involved. Commonly, there are structural abnormalities requiring surgical correction before complete relief is possible, but there is a large field for local nonsurgical measures both in cases where operation is not required and as a treatment following operation, since it is but rarely possible entirely to cure the disease by means of surgical measures. The crudity and other futility of ordinary nonsurgical measures directed to the nose is notorious. Every one appreciates the uselessness of the nasal spray and nebulizer, but many doctors still employ them in a sort of helpless way, just to be doing something. Much can be done by simple procedures. It will be a comfort to such physicians to learn that by mastery of a few simple procedures and without surgical skill they can accomplish real results in many of these catarrhal cases.

To this end, it is essential first of all to make a complete inspection of the interior of the nose and nasopharynx by means of artificial light and suitable specula. The ability to do this can be acquired by any physician with little difficulty. In the next place it is necessary to cleanse the nasal spaces and this cannot be done by the mere spraying of the anterior nares. The nasopharynx and posterior ethmoid region can be cleansed only with the aid of instruments that will throw solutions into the vault and high into the middle meatus, which receives the drainage from the accessory cavities.

It must be understood that rhinitis or catarrh never results from pathological changes limited to the nose alone, except in obvious structural deformities. Some of the accessory cavities are usually involved, the most common of course being the ethmoid. It is to this region that treatment must chiefly be directed in order that the best results may be obtained. While the treatment is primarily a problem of cleansing and drainage, it is now possible to go further than this, and to employ more active means in combating these infections.

Dr. Huyett said that the treatment that he is usually in the habit of using is the one in which we tampon the nose with certain solutions that exercise a curative influence on mucosal infections. By conducting an interesting series of experiments we learn the effect of various silver solutions employed in this manner, and find that a 10 per cent. solution of argyrol is best adapted for such cases. This method has been regularly used by a considerable number of rhinologists during more than five years, and its value is established beyond a question. Not only is it efficacious in the treatment of nasal and tubal infections but equally so in those ophthalmic conditions now known to result from sinus disease.

Essentially, the method of treatment is to employ tampons of such length and size, as will snugly fit between the middle turbinal body and the septum, and extend from the anterior position of the nose to the choana posteriorly. These tampons should be first saturated with a 10 per cent. solution of argyrol. Through capillary attraction they will deplete the proximate soft tissues and drain the ethmoid cells and other sinuses. In order to drain the maxillary sinuses the tampons should be placed under the scroll of the middle turbinate body, and above the upper part of the inferior turbinate. However, since the soft tissues are usually greatly engorged and hypertrophied, they in themselves will assist the capillary attraction, and it frequently is only necessary to place the tampons between the middle turbinate body and septum. The tampons should be made sufficiently large to be snug, but not so sizable as to occasion pain in their placing. They should remain inside for from ten minutes to half an hour, and very occasionally an hour. The primary effect is sneezing, irritation of the conjunctiva and a nasal discharge. On removing the tampons they will be found bleached, either in spots or throughout their entirety. This is due to the action of certain bacteria on the solution employed. Subsequent to the withdrawal of the tampons the nose should be thoroughly douched by means of a compressed air machine or through use of postnasal or intranasal douche. Any mild alkaline solution is acceptable for the purpose. The final step of the technic is the use of some bland oil.

Clara S. Keiser, Reporter.

BLAIR—MARCH

At the meeting of the Blair County Society, March 27, "Baby Week" was heartily endorsed and we plan to outdo in every respect the success of our initial show last year. Coincidently, we hope to lay great emphasis on the maternal welfare, both as to mortality and morbidity. Several of our local men are in the Medical Reserve and have been notified "to be ready to report." The nearness of war has made us all think of a base hospital in Altoona. Each Wednesday we have "get-together luncheons" in Altoona, and they are proving to be a great success and thoroughly enjoyable.

James S. Taylor, Reporter.

LEBANON—MARCH

The Lebanon County Society met March 13 in the courthouse, Lebanon, with Dr. W. H. Brubaker presiding.

Dr. J. R. Beckley read a paper on "Pneumonia—After Its Diagnosis, What?" He said that each case is a law unto itself and must be handled accordingly. First of all comes rest in bed in the best hygienic surroundings, with plenty of fresh air and the number of visitors cut to the utmost. He paid his respects to the dumb animals of the house and soundly denounced their presence in the sick room. The patient's body should be bathed daily with soap and water, this to be followed by an alcohol rub. Dr. Beckley favors the application of warmth to the chest, fly blisters and plasters. The diet should consist of milk, supplementing soda water occasionally. For some of the outstanding symptoms and conditions he outlined the following: for an excessive cough, morphin or codein; for fever, aconite or niter; for weakened heart, iodid of ammonia, quinin or strychnin. In the plethoric, in the early stages, venesection is good. The speaker shuns acetanilid and sounded a warning note against its use. He promoted the theory that pneumonia patients have an immunity against intoxication with brandy except in large amounts. A lively discussion followed this remark, and also the one relating to the use of aconite. Some of those present argued against the use of this dangerous drug.

A campaign was started against the overwhelming amount of patent medicine advertising in our local papers and a boycott was suggested against the drug stores that cater especially to this kind of trade. One of the leading drug stores will be warned against its open exploitation of a certain product now being actively advertised and sold.

A luncheon was served immediately after the adjournment. George R. Pretz, Reporter.

PHILADELPHIA—JANUARY

The Philadelphia County Society met January 24, at 8:30 p. m., with President Jump in the chair.

"The Value of Blood Pressure Observations from the Life Insurance Standpoint" was given by Dr. R. Max Goepp. The paper gives a summary of results shown by ten years' experience. Mortality increases directly and proportionately with increased systolic pressure. Analyses are given of replies to questionnaire received from leading companies showing present status of blood pressure test. The importance of diastolic and pulse pressures is shown. Diastolic readings are now required or requested by some progressive companies.

Dr. George P. Müller presented a communication entitled, "Blood Pressure in Relation to Surgical Conditions."

"Blood Pressure in Obstetrics" was given by Dr. Philip F. Williams. Periodic observations of the blood pressure are as important a part of the care of a pregnant woman as the examination of the urine or the practice of pelvimetry and fetometry. The blood pressure of a normal pregnant woman should not exceed that of her nonpregnant condition. In the last month of pregnancy there is often found a slight increase in the systolic pressure without change in the diastolic. The onset of labor is usually followed by a rise of from 10 to 40 mm. Hg in the systolic pressure; following rupture of the membranes there is a transient and variable fall. The increase is greatest just at the birth of the head, and following delivery there is usually under normal conditions a fairly rapid drop in systolic pressure to the previous or normal level; in some instances a slight increase has been noted at the establishment of lactation. In the toxemias of early pregnancy the systolic blood pressure has often been noted as subnormal. In the detection of the toxemic processes in the later months of pregnancy the routine observation of blood pressure affords its greatest value. A marked rise or a steadily increasing tension in blood pressure is often the first sign of an approaching toxemia and is sometimes present before any other sign. A systolic pressure of or above 140 mm. Hg in a pregnant woman demands examination for other evidences of toxemia. A fluctuating high pressure in toxemia of pregnancy indicates a marked derangement of the cardiovascular mechanism.

In all cases of extreme hypertension in toxemic pregnant women venesection should be considered first as an emergency measure with the withdrawal of from 12 to 20 ounces of blood; forced perspiration is also of value. Rupture of the membranes in an eclamptic woman is followed by a drop in pressure of from 20 to 60 mm. Hg. This reduction is usually followed by a partial rise toward the former level. Bailey describes abrupt fall in systolic pressure of from 60 to 120 mm. Hg with collapse and death in patients subjected to sudden forced delivery or to full physiological doses of veratrum viride. Pituitary gland is generally contraindicated in toxemic parturient women since it raises the blood pressure. Occasionally a high systolic pressure may be noted throughout pregnancy without signs of toxemia; notably, in a patient above 40 years, or in one with a mild degree of chronic nephritis. In one case under observation such high pressure which persisted into the puerperium with no evidence of toxemia was due to lues. Quick reduction of the pressure was effected by salvarsan. In a woman showing hypotension throughout pregnancy measures should be taken to guard her from exhaustion during labor; the blood pressure is further depressed by effort causing shock and collapse to a marked degree. In a toxemic case a high diastolic pressure with the absence of a proportionately increased systolic pressure indicates a cardiac muscle which has not compensated for the high degree of peripheral resistance. Under such circumstances the usual methods of elimination must be moderated. Occasionally it has been found necessary to administer cardiac stimulants and forego elimination. The value of the sphygmomanometer as attested by thousands of observations would seem to amply justify its use in the practice of obstetrics.

Dr. Francis J. Dever read a paper on "Blood Pressure from the Standpoint of the Clinician," which will be published in a subsequent issue of the Journal.

"Blood Pressure Formulas, Their Value and Significance" was given by Dr. Francis Ashley Faught. Among the newer methods of precision sphygmomanometry has withstood the test of time and has rightly been accorded an important position among the diagnostic methods of clinical medicine. No other modern method of examination has a greater field of applicability than has the blood pressure test. Physicians fall into two groups: (1) That of the thoughtful enthusiast who accepts all that has been written concerning this test; (2) that of the skeptic. Both attitudes of mind are deplorable. The chief value of the test is that we are often enabled to detect pathological change at a time not ordinarily discovered by the usual methods of examination. The following points are emphasized:

1. Blood pressure observations to be of value must be accurately made and recorded and averages based on a series of observations are of more value than isolated blood pressure tests.

2. (*a*) The systolic blood pressure alone is of far less clinical value than when considered in relation to diastolic pressure, the pulse pressure and the pulse rate. (*b*) Formulae for the determination of cardiac load and overload based on the diastolic pressure and pulse pressure should be employed with great caution as it is probable that they do not give the information ascribed to them.

3. Cardiac energy, load and overload, is probably best indicated in sphygmomanometry clinically by the systolic pressure alone but may be profoundly modified by the pulse rate.

4. Marked departure from the normal systolic, diastolic, pulse pressure ratio is usually an indication of an abnormal state of the circulation.

5. The maintenance of 3: 2: 1 (S D P) ratios even with markedly elevated systolic pressure usually indicates an efficient circulation.

6. Diastolic pressure is our best indication as to the state of peripheral resistance and is of value in toxemic, hypertensive and arteriosclerotic conditions. The value of high systolic pressure and of large pulse pressure findings is greatly increased by careful urinary examinations, since the degree of kidney involvement is usually of more importance in prognosis than the actual height of systolic pressure.

7. A small pulse pressure in high pressure cases is suggestive of myocardial involvement and this indication becomes more serious as the cardiac rhythm becomes altered.

8. The pulse pressure is of considerable value in determining circulatory efficiency and also in indicating the cardiac output which, however, is greatly modified by degenerative changes in the arteries and by the pulse rate.

Dr. Percival Nicholson, in discussion: In a number of cases registering a blood pressure of 160 to 170 I found that a very large number were caused by overeating and underexercising. With the institution of proper hygienic measures the blood pressure became normal and remained so, so long as the patients led a less intense life. Nervous tension and business strain are two of the most common causes of high blood pressure. In my experience, blood pressure figures are of little significance, except in relation to the individual patient. A systolic blood pressure of 120 to 130 is of little significance without the diastolic pressure and knowledge of the patient's regular systolic level. However, a systolic blood pressure of 120 which is increased ten points in a short time is of very marked significance. You may be called to a patient who has all the symptoms of apoplexy, with even complete paralysis of one side, in whom it is found that the blood pressure is normal. In such a case you can give an absolutely good prognosis. The case is due to a spastic condition of the cerebral blood vessels and under supportive treatment and stimulation will clear up within three or four days. Then there are patients with high blood pressure who have a "pathologically normal blood pressure," which, if we reduce, will do harm to the patient. The heart has accommodated itself to a certain amount of blood pressure and such pressure reduced by other than hygienic regulation will harm the patient. Nitroglycerin, veratrum viride and the various cardiac depressants will do harm. A pathologically normal blood pressure, however, which is so elevated as to cause danger of apoplexy is best reduced by bleeding. All heart cases with hypertension are aided frequently by digitalis, provided there is myocarditis. In the absence of myocarditis in such cases digitalis is contraindicated. I, however, have never seen a case in which digitalis raised a blood pressure which was already higher than normal. I have seen cases in which it raised a hypotension to the normal. Care should be exercised in making a functional test of the heart. It must be remembered that the patient is excited, and interested in the test. This in itself will raise the blood pressure much higher than you would imagine. Hypotension is raised more by nervous tension than by any other single element. In a blood pressure above 130 there is usually some diseased condition producing the elevation, and not due to advancing years, per se.

Dr. H. C. Wood, Jr.: There is a tendency today to believe that the blood pressure will solve all the doctor's problems. I agree with Dr. Nicholson that there is what he aptly calls a pathologically normal blood pressure and that we should not set about to reduce the pressure simply because it is above that which life insurance statistics state that it ought to be. The diastolic pressure is no more an indication of the vasomotor tension than the systolic. The diastolic pressure depends on the output of the heart just as much as the systolic, and both depend on the pulse rate. The pulse rate will influence the blood rate as much as any other single factor. Notwithstanding this, not one of the speakers said anything about the pulse. I have seen the pressure fall to zero in the animal by stimulating the pneumogastric nerve. Any formula of cardiac sufficiency based on the relation between the diastolic and systolic pressures which does not take into consideration the pulse rate is a waste of time; you can make the pulse pressure anything you like by variation of the rate. I have seen the blood pressure lowered 90 mm. in man under the influence of the nitrites; occasionally I have noticed cases in which the nitrites did not lower blood pressure. I also agree with Dr. Nicholson that digitalis does not raise the blood pressure. It is a circulatory tonic rather than stimulant. Unless given in toxic doses it does not raise the blood pressure in health or disease. One should not be afraid to use it because the blood pressure is high.

Dr. George E. Price: In a study of arteriosclerosis of the nervous system I have been surprised to find in only two instances out of a large series of cases very high blood pressure. I believe with Dr. Dever that the best results are secured by regulating the mode of life rather than by the administration of various drugs.

Dr. John A. McGlinn: In obstetrics blood pressure study is of unquestioned value in prognosticating an oncoming toxemia. Care must be taken, however, not to regard a high blood pressure as indicative of toxemia, without corroborative work in other lines. In my experience, the question is not so much that of the height of the blood pressure, unless this be unusually great, but the constant rise in pressure. This is of the utmost significance. I have seen some of the worst cases of eclampsia with a low blood pressure. It must be borne in mind that the blood pressure is an aid, and not the determining factor, in the question of toxemia.

Dr. Barr: Fifty years ago Dr. DaCosta, after examining my heart, advised me to give up work for a time, and I spent four months on a vacation. I carry with me always digitalis, strychnin and iron and I have carried my heart along first rate. I never had an instrument to test the heart beat. I saw a patient once whose heart was puffing out at such a rate that I sent for a bleeder. The bleeder did not come, and I opened a vein with my pocket knife; the ceiling was painted, and the good lady was all right. A delicate touch will detect a heart condition almost as well as could possibly be done with the finest sphygmograph. The only time I ever regretted that I did not have an instrument was once at Atlantic City. A gentleman came over to my office in a hurry and asked if I had an instrument for testing the tension of the heart. I had to tell him no, and—I lost five dollars!

Dr. William Harmar Good: I wish to call to Dr. Wood's attention another simple demonstration in physiology. If, while making a blood pressure reading on a rabbit, the trifacial endings in the nose are stimulated, the heart is reflexly greatly slowed and at the same time the blood pressure is greatly raised. If now certain vagus endings in the pulmonary alveoli are stimulated by forcible dilation through a tracheal cannula, the cardioinhibition is released, the heart becoming more rapid, and at the same time the pressure falls. The common reaction to peripheral sensory stimulation is slowing of the heart and the raising of the blood pressure.

Samuel McClary, III, Reporter.

SNYDER—MARCH

The Snyder County Society met in the Eagle Hotel at Middleburg, March 2, at 1 p. m., with Drs. Brosius, Hassinger, A. J and Percival Herman, Johnston, Long, Miller and Wagner present. Officers for the ensuing year were elected. The treasurer rendered a report covering the years since 1912 and showing a small balance in favor of the society.

Dr. Percival Herman's paper on "Typhoid Fever, Its Diagnosis and Treatment," was comprehensive and aroused considerable animated discussion, particularly in regard to the diet in cases of typhoid. Dr. Herman and the greater number of members favored a very restricted diet as opposed to a more liberal one recommended by some of the younger members.

Dr. Johnston's paper on "Every-Day Minor Surgery" was read hurriedly before adjournment on account of the approach of train time.

R. W. Johnston, Reporter.

NECROLOGY

IN MEMORIAM—Francis Chaffee, M.D.

(Resolutions adopted by the Bradford County Medical Society, March 13, 1917.)

Whereas, It has pleased the Almighty in His infinite wisdom to remove from our midst our friend and fellow physician, Dr. Francis Chaffee, one whom we have always esteemed for his high professional attainments and sterling character; therefore be it

Resolved, That we, the members of the Bradford County Medical Society, express our deep sorrow at the loss of this member whose companionship we sadly miss; and be it

Resolved, That we tender our sincere and heartfelt sympathy to the members of the family into whose lives this sorrow has come, and be it further

Resolved, That a copy of these resolutions be sent to the family of the deceased, that a copy be inserted in the state journal, and a copy placed in the minutes of the Bradford County Medical Society.

C. M. Woodburn,
P. H. Schwartz,
Charles Reed.

THE TRUTH ABOUT MEDICINES

NEW AND NONOFFICIAL REMEDIES

Since publication of New and Nonofficial Remedies, 1917, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies":

Tablets Sodium Chloride and Citrate-Squibb (Dr. Martin H. Fischer).—Each tablet contains sodium chloride 1 Gm. and sodium citrate 2 Gm. E. R. Squibb and Sons, New York.

Optochin.—Ethyl-Hydrocupreine.—A synthetic alkaloid closely related to quinine. It has the antimalarial and anesthetic action of quinine, but toxic symptoms, such as tinnitus, deafness, amblyopia or amaurosis (retinitis) are more liable to occur than with quinine. Investigations indicate that the drug may be of value in the treatment of lobar pneumonia, when its safe dosage has been determined. Reports indicate that the drug is of decided value in the treatment of pneumococcic infection of the eye (ulcus corneae serpens). Optochin is insoluble in water, but may be used in 1 to 2 per cent. solution in a bland fatty oil or as an ointment. Merck and Co., New York.

Optochin Hydrochloride.—Ethyl-Hydrocupreine Hydrochloride.—The hydrochloride of optochin (see above). It has the therapeutic properties of optochin, but is soluble in water. For application to the eye and instillation into the conjunctival sac a freshly prepared 1 to 2 per cent. solution in water is used. Merck and Co., New York (*Jour. A. M. A.*, March 3, 1917, p. 713).

PROPAGANDA FOR REFORM

Effect of Opium Alkaloids on the Ureters.—According to D. I. Macht morphin and the opium alkaloids having a similar constitution increase the contraction and produce a greater tonicity of the ureter, whereas papaverin and the opium alkaloids constituted similarly produce a slowing or total inhibition of the contraction and relaxation of the tonus. In opium and pantopon, which contains the total alkaloids of opium, the effect of the morphin group preponderates. Ureteral colic is due to spasmodic contractions of the ureter caused by the irritating calculus and hence the use of papaverin or opium is more rational than that of morphin. Furthermore, the slighter toxicity of papaverin, its tonus lowering power and its local analgesic properties suggest its local application in spasmodic conditions of the ureter (*Jour. A. M. A.*, March 3, 1917, p. 719).

Dating of Biologic Products.—For the protection of the consumer as well as the manufacturer, the Council on Pharmacy and Chemistry has adopted a rule requiring that serums and vaccines and similar products to be accepted for New and Nonofficial Remedies must bear on each package the date of its manufacture in addition to the date required by federal law. The practice now followed by manufacturers of placing on the containers of biologic products the date beyond which these agents are not to be regarded as dependable (though in accordance with the federal law) has not been satisfactory. Except for diphtheria and tetanus antitoxin, in general there are no methods for determining the potency of serums and vaccines. At the present time, for the same material, one manufacturer will fix an expiration date of four months, others one year or even eighteen months. Obviously this lack of uniformity is unfair to the manufacturer who endeavors to supply a product as fresh as is commercially practicable and it also may lead the physician to form a false opinion regarding the potency of certain biologic products. The new rule of the Council will enable the physician to know the age of a given product when it reaches him and will permit him to judge whether or not it has been kept unduly long. Moreover, it will prove not only helpful to the conscientious manufacturer and the physician but will also safeguard the patient (*Jour. A. M. A.*, March 3, 1917, p. 728).

Another Shortage of Salvarsan.—The indications are that the supply of salvarsan and neosalvarsan in this country has again reached the point of exhaustion. Congress, which made our patent law, has the power to suspend the patent on any preparation that the patentee is unable to, or does not supply, when such suspension is in the interest of public health, and it should suspend the salvarsan patent. In the meantime it is to be hoped that the Dermatologic Research Laboratory of Philadelphia will again supply the product as it did during the previous salvarsan shortage (*Jour. A. M. A.*, March 10, 1917, p. 785).

Ichthytar.—The Council on Pharmacy and Chemistry reports that Ichthytar was submitted by the Szel Import and Export Company with the claim that it was essentially similar to ichthyol in composition and superior to it in therapeutic properties. The statements that were submitted regarding its composition made it impossible to determine whether or not it was similar to or identical with ichthyol. No evidence was furnished in regard to its therapeutic value. On the basis of the available information the Council held the claims regarding composition and therapeutic value unsubstantiated and ichthytar ineligible for New and Nonofficial Remedies (*Jour. A. M. A.*, March 10, 1917, p. 796).

Succus Cineraria Maritima.—In agreement with the report of the Council on Pharmacy and Chemistry holding the claims made for Succuss Cineraria Maritima (Walker) unfounded, the federal government charged that the claim that by dropping this preparation into the eye cataract may be cured was false and fraudulent. In February, 1916, the Walker Pharmacal Company pleaded guilty. Since the government's prosecution, brought under the Food and Drugs Act, affects only the claims made on the trade-package of a preparation, the admittedly false claims were still made in circular letters sent to physicians as late as October, 1916 (*Jour. A. M. A.*, March 17, 1917, p. 864).

Rheume Olum.—The Council on Pharmacy and Chemistry reports that Rheume Olum (The Rheumeolum Chemical Co., Seattle, Wash.) is said to be composed of camphor 7 per cent., chloral hydrate 7 per cent., menthol 2⅓ per cent., methyl salicylate 25 per cent., oil cajuput 2½ per cent., oleoresin capsicum, lanolin, white wax, "qs." The Council found Rheume Olum unacceptable for New and Nonofficial Remedies because the amount of the potent oleoresin of capsicum was not declared, because unwarranted therapeutic claims were made, because the name was nondescriptive of its composition and therapeutically suggestive and because the fixed formula was considered irrational (*Jour. A. M. A.*, March 17, 1917, p. 865).

Control of Intestinal Bacteria.—A recent investigation indicates that the direct feeding of bacterial cultures of lactic acid producing organisms had almost no influence on the intestinal flora. On the other hand the administration of milk sugar (lactose) brought about a marked change in the intestinal flora. It appears therefore that the beneficent action of milk cultures is dependent on the lactose and not on the bacteria which they contain (*Jour. A. M. A.*, March 24, 1917, p. 918).

The Sargol Case.—The exploiters of Sargol, the get-fat-quick nostrum, were found guilty of fraud and were fined $30,000 after promising that the business would be discontinued. Sargol was made by Parke, Davis and Co. at a price of 53 cents to 78 cents per thousand tablets. Sargol was stated to contain extract saw palmetto, calcium hypophosphite, sodium hypophosphite, potassium hypophosphite, lecithin, extract nux vomica. The trial is said to have cost the United States over $100,000. Although the business was palpably fraudulent, although the claims made for the nostrum were palpably false, the defendants were able to employ physicians to go on the stand and swear that Sargol was a "flesh builder" and "bust developer" (*Jour. A. M. A.*, March 24, 1917, p. 927).

Betaine Hydrochloride.—It contains 23.8 per cent. absolute hydrochloric acid and 8 grains corresponds to about 18 minims of diluted hydrochloric acid. In solution betaine hydrochlorid dissociates into hydrochloric acid, but it is not so efficient in aiding the action of pepsin as an equivalent amount of hydrochloric acid (*Jour. A. M. A.*, March 24, 1917, p. 931).

Active Principle of Leeches.—The principle in the buccal secretion of the leech which prevents the clotting of blood is herudin, a deutero-albumose (*Jour. A. M. A.*, March 24, 1917, p. 931).

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ORIGINAL ARTICLES

HABITUAL DISLOCATION OF THE ULNA *

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Recurrent or habitual dislocation of the ulna may be the result of external violence accompanying fracture of one or more bones at the wrist joint, or it may follow an infection of the soft structures. Infection may be secondary to a compound fracture or an injury to the tendons and surrounding structures.

We have then a division into traumatic and pathologic varieties of habitual dislocation. In 1771 Desault was the first to recognize them, and according to Malgaine accurately described them. Up to the present time nineteen cases have been reported, including the writer's case.

Recurrent or Habitual Luxation of Ulna

Author	Simple	Pathological		Associated with fracture	
Stimson	3 cases	Rognetta	1	Jopson	1 with fract. Colles
Desault	1 case	Behrend	1	Cotton	2 with fract. Colles
Hill	1 case			Courtin	3 with fract. Styloid
Yoder	1 case			Hoffa	3 with fract. Styloid
Hamilton	1 case			Darrach	1 with fract. Styloid & Radii
Total	7 cases		2	Total	10 cases

Total of 19 cases of habitual luxation of ulna.

Various forms of treatment for this annoying dislocation have been advocated. Stimson deprecates operative interference in pathologic dislocations. He contends that the limb recovers its full usefulness after the growth of the skeleton ceases and the progress of the displacement is arrested. He is supported by Madeling, who bent his efforts toward strengthening the muscles by exercise and in some cases advised the use of a moulded leather bracelet. This prevented movements of the wrist and left the fingers free. Rognetta used forced supination and special padding to hold the ulna in position. Yoder tried adhesive strips and an anterior splint for several weeks. These splints were finally abandoned because there was no tendency of the ulna to stay in place. A wristlet was then used. One year later there developed a complete dislocation of the ulna. A wristlet was again tried, but the patient did not wear it long and no further treatment is mentioned. In Hamilton's case compresses and splints alone were used. One of Cotton's cases refused operative treatment, and mechanical fixation failed on account of the painful pressure on the nerves. The second case he saw in consultation. This patient was cured by an osteotomy that in effect tightened the radio-ulnar ligaments. Treatment of Curtain's case could not be found. Hill used splints only. Hoffa operated on two out of three cases mentioned by opening the capsule and suturing the periosteum. If there is sufficient disability present, Darrach resects the lower end of the ulna. Jopson gives as his treatment the resection of the head of the ulna and suturing the adjacent periosteum to keep the bones together.

The writer's case was a pathologic one following an injury to the soft parts. The history is as follows:

Patient G. K., in August, 1915, while attempting to close a window, thrust his right hand through a pane of glass, severing all the flexor tendons at the wrist joint. This accident occurred in another city, where he was temporarily treated on two different occasions. The same day the patient was brought to the Jewish Hospital in Philadelphia. On admission he was unable to flex his fingers. There was loss of sensation along the area supplied by the ulnar nerve, the median being only partly severed. On account of the time which had elapsed from the moment of injury and period of admission great difficulty was encountered to match the tendons because of their retraction. No attempt had apparently been made to sew the individual tendons as two catgut sutures were found uniting the bundles of retracted tendons. It is inconceivable that such poor technic should have been revealed, though our late lamented Murphy reports several cases which he has opened where no attempt had been made to unite analagous tendons.

The wound became infected and after a long convalescence healing took place. Preternatural mobility remained at the radio-ulna articulation. The radius

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* Read before the Section on Surgery of the Medical Society of the State of Pennsylvania, Scranton Session, September 21, 1916.

was fixed, but in certain movements the ulna would be dislocated about ¾ inch posterior. There was marked loss of power whenever this occurred.

The problem that presented itself was how to keep the ulna in place. Renewal of the ligaments was considered, but this method was rejected because it was thought too much destruction of tissue had occurred. Wristlets and splints were tried but they were found ineffectual. The following operation which to the writer's knowledge has never been performed for this condition was then devised. The principles established by Murphy for the extra-articular nailing of bones were employed.

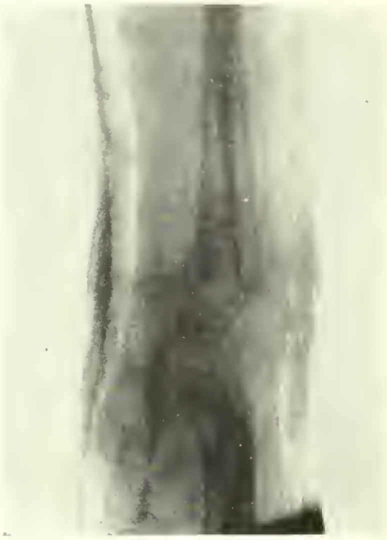

Fig. 1.—Note dislocation of ulna.

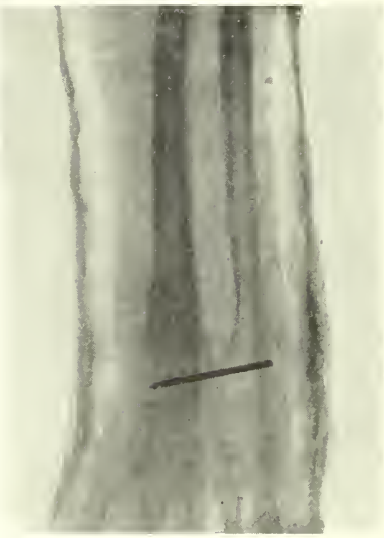

Fig. 2.—Wire nail passed transversely through ulna and radius.

A quarter of an inch incision is made over the styloid process of the ulna, a drill is used to bore a hole transversely through the ulna and radius, and a tenpenny wire nail is hammered into the opening made by the drill. Great care must be exercised to avoid entering the joint. To insure against this a metal rule may be used as a guide to get the proper line through which the nail must traverse. While performing this operation the opposite arm ought to be exposed to get the relation of the styloid process to the radius. This varies greatly in every individual. In some people the styloid process is exceedingly prominent and fixed, in others it can hardly be seen, and again in others it may be freely movable.

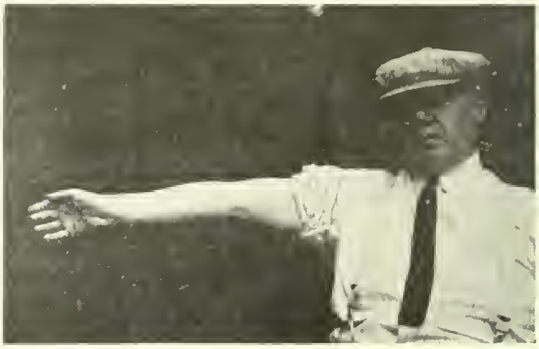

Fig. 3.—Imperfect supination, operated side.

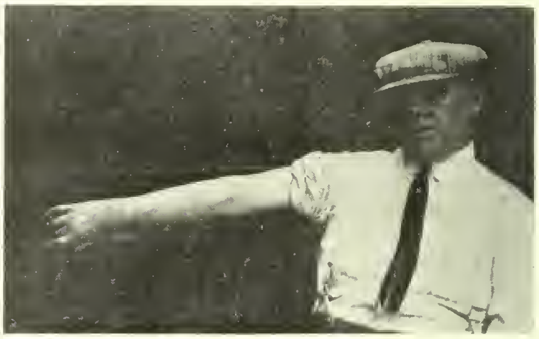

Fig. 4.—Perfect pronation, operated side.

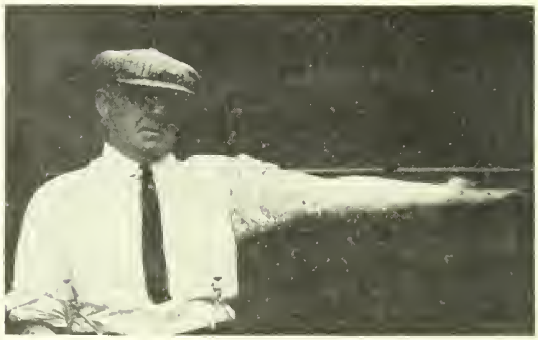

Fig. 5.—Perfect supination, unoperated side.

While the criticism against this operation lies in the fact that it fixes the ulna to the radius, as a matter of fact normally the extreme lower portions of the ulna and radius move very slightly in pronation and supination. In this case motion has been very little interfered with. Pronation is perfect but supination cannot be completely performed. The patient has good use of his arm and has returned to his original occupation, that of chauffeur. A point of considerable interest is the fact that the anatomical relations have been preserved.

CONCLUSIONS

1. That wristlets, splints, bandages, etc., are ineffectual in maintaining an habitual dislocation of the ulna in a permanent position.

2. That whenever tendons are severed they should be immediately repaired under the strictest aseptic and antiseptic precautions.

3. That a wire nail passed transversely through both bones at the wrist does no harm, allowing the patient to perform all necessary motions.

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DISCUSSION

Dr. J. Torrance Rugh, Philadelphia: I want to call attention to the marked superiority of a pin of bone to a nail in work of this character. The nail is a foreign body and will always remain a foreign body in that part. If there is any trouble, the nail will have to come out. If you use a bone pin, you get as good fixation and you get something which becomes a part of the arm, a part of that articulation. It is permanent. There is no possibility of trouble from it.

LIMITATIONS AND ADVANTAGES OF LOCALIZED ANESTHESIA*

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Knowledge of the limitations and the range of application of local anesthesia has materially increased within the last several years. In the beginning its use was restricted to minor surgery and an occasional major operation by an expert and enthusiast. Today its possibilities have extended to every department of surgery, so that nearly all the common operations can be done with this method of anesthesia.

The introduction of novocain in combination with adrenalin is responsible for this new era which has made surgery possible without pain and without the risks and disagreeable features associated with the use of ether. The novocain and adrenalin combination lacks the objectionable features of the many prior agents.

It forms a stable solution in water which can be sterilized and injected into the tissues without pain. It is absorbed in the field of injection where it has a marked local anesthetic effect which can be made to last about an hour. The injection of any amount, even to the point of edematizing the tissues, does not interfere with wound healing. In a paper analyzing 1,500 operations for inguinal hernia done at the Massachusetts General Hospital, read before the Surgical Section of the American Medical Association in June, Dr. Davis made the statement that 17 per cent. of the cases operated on with local anesthesia developed wound infection, while in the cases with general anesthesia 4 per cent. were infected. This statement was rather startling. Wound infection seems to come in cycles and occurs in varying percentages to every surgeon irrespective of the anesthetic. Dr. Crile and his associates have used novocain in over 14,000 operations. After this extensive experience he says that "novocain has absolutely no deleterious effect on wound healing and has no toxic effects, and there have been no fatalities from its use." My personal experience in the use of novocain, limited to about 1,000 cases, coincides with the majority of other users, namely, that if the solution injected is sterile its use does not invite infection nor delay wound healing and the percentage of wound infections is negligible.

The toxicity of novocain seems to depend largely on the rapidity of absorption rather than on the amount used. In a personal communication Dr. M. L. Harris of Chicago writes: "What would be toxic if injected directly into the circulation would have no effect whatever if injected subcutaneously in a solution which retarded its absorption." He has used novocain extensively for a period of ten years and has never seen any serious toxic effects. These toxic symptoms are vomiting, increase in pulse and respiration, pallor and a feeling of general weakness. I have observed a mild form of this picture in two of my cases. One was a complete breast operation and the other a double inguinal hernia and appendix. In the former 250 c.c. of a 0.5 per cent. solution was used. Vomiting alone has occasionally occurred. Several novocain deaths have been recorded. The details of one were reported to Harris by his assistant, and it is his belief that the fault lay in the method of injecting. The operation was for the removal of tonsils and death occurred suddenly. Three to five drops of a 1 : 1,000 solution of adrenalin should be added to every 40 or 50 c.c. of novocain. By peripheral muscular action it causes contraction of the blood vessels. This delays absorption, thereby diminishing toxicity, prolongs the anesthesia, and assists in producing a bloodless operative field. Adrenalin should be used with care in extremities like the finger, in traumatized tissues and in plastic flaps.

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* Read before the Section on Surgery of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 21, 1916.

The so-called conduction anesthesia and the terminal infiltration are the two common methods employed. In the former the anesthesia is produced by blocking the nerves some distance from their termination. This is done by injecting directly into the nerve or by freely infiltrating the tissues around the nerve which is then reached by diffusion. Definite bony landmarks are usually necessary to make this method useful and accurate. The terminal anesthesia is more frequently used because it is simple and satisfactory. A combination of both methods works out very nicely in operations of a certain type, such as complete breast and rectal and perineal work. Whatever method is used success depends either on saturating the tissues with the anesthetic agent, or injecting it directly into the nerve. The tissues are usually saturated in layers in and beyond the line of incision. First the subcutaneous, then the deeper fascia, muscles and other necessary tissues. These deeper tissues may be injected before or after the skin and fat incision. The latter method I think is preferable, more accurate and more efficient because all tissues do not infiltrate equally well and nerves can be sought for and injected directly.

For minor surgery perfect anesthesia is a simple matter. In operations requiring a long time, or an uncomfortable position, or when the patient is nervous, or when it is thought best to eliminate the so-called "psychic trauma," morphin or morphin and scopolamin should be used. This latter combination cannot be used by a certain set routine applicable to every case. Small repeated doses are probably to be preferred with special care in its use in the very old or debilitated. Proper dosage is sometimes difficult but after some experience it is usually possible to regulate the degree of this narcotic assistance as desired, from the very light to the complete narcotic stage. There are operations where both the block and the narcosis is perfect, yet at certain stages the patient will become restless. Several drams of ether or a little nitrous oxid oxygen anesthesia will be all that is necessary to relieve. This small amount does not produce vomiting or ether toxemia. This slight addition of ether is necessary in the majority of abdominal operations when a general exploration must be made, or adhesions relieved, or traction made on the bowel or other viscera and where the field of operation must be prepared by using gauze packs. Because of varying conditions in individual cases and the varying character and location of operations, it is obvious that a broad experience will materially assist in deciding on the method which is best to apply.

It is not my purpose to discuss technic nor to enumerate in detail the many surgical procedures possible under novocain. The perfect satisfaction to both patient and surgeon in all the various types of minor surgery has already been mentioned. All inguinal and femoral hernias and some of the umbilical and incisional type should be done without ether. Most of the operations on the male genital organs are a satisfactory group. The rectal sphincter can be thoroughly stretched for purposes of examination, ulcer fissures and fistulas treated, and hemorrhoids ligated, excised, or removed by clamp and cautery. Vaginal operations and more extensive perineal and rectal work are possible, but require blocking of sacral plexus in addition to the local infiltration. Some thyroidectomies are very satisfactory with local anesthesia. In opening the abdomen, which can be done at any point and to any length, special attention must be given to a thorough infiltration of the intermuscular septa, the muscles themselves and the preperitoneal tissues. The usefulness of infiltration anesthesia in abdominal work depends on conditions found inside. I can personally testify to the fact that general abdominal explorations, cholecystectomy, gastro-enterostomy, bowel resections, appendectomy, hysterotomy at and before end of pregnancy and other operations on the abdominal and pelvic viscera can be done without any general anesthesia, without pain, and with perfect satisfaction to all concerned. Upper abdominal work on the weak and debilitated and operation on a patient handicapped by shock, age, exhaustion or some organic lesion should always be attempted under novocain. Acute inflammatory lesions, youth, extreme nervousness and conditions that would lead to incomplete operations are indications for general anesthesia. Even in these cases routine infiltration of the abdominal wall, as advocated and practiced by Crile, will be of material assistance to recovery and postoperative comfort.

Patient and persistent use alone can train a judgment as to the limitations of local anesthesia and the type of cases in which it is indicated in preference to a general anesthesia. The possible disadvantage may be noted as follows: (1) The operative field cannot always be completely anesthetized. (2) The mental attitude of the patient may not be right. (However, the fact that painless surgery can be done without ether is becoming more widely known by the laity and converts to this method are usually easily made.) (3) Too much enthusiasm with too little judgment may lead to inexact or incomplete surgery. (4) The question of additional time required for operations under local anesthesia is regarded by some as an objection. This is only relative and should hardly be considered valid.

The advantages may be briefly summed up as follows: (1) The novocain and adrenalin combination when injected in proper solution and with correct technic is absolutely safe. This is my personal judgment as well as the judgment of all users. (2) There is a minimum amount of surgical shock and encroachment on the patient's margin of safety; rarely is there vomiting, neither is there ether toxemia to overcome. Because of these facts the patient enters promptly on a smooth and comfortable convalescence. (3) There is prompt and I believe better wound healing due to the sharp dissection and gentle handling of the tissues. (4) Moderate toxemia may occur, but no serious heart, lung, gastro-intestinal or kidney disturbances seem to follow the use of novocain. (5) Office and ambulatory surgery is simplified. (6) Postoperative pain is less in abdominal cases if a 1/6 per cent. solution of quinin and urea is injected around the field of operation. This causes an edema of the tissues which is not serious if the suturing is not too tight.

Weighing these limitations against the advantages and possibilities I feel that we can fairly say that novocain anesthesia, plain or with one of the possible combinations, should be used: (1) When the operative field can be completely anesthetized and the mental attitude of the patient is right; (2) when the vitality of the patient is low and the margin of safety is narrow and a minimum postoperative shock is regarded as a factor necessary for recovery.

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DISCUSSION

Dr. J. Torrance Rugh, Philadelphia: I want to mention a little point in the matter of the toxemia which results from the use of these local anesthetics. Very early in the course of the use of cocain, toxic effects were extremely common and all manner of stimulants, such as strychnin and whisky were used to counteract the effect. In a case on which I was operating I had no strychnin or any of these substances present and I used nitroglycerin with the happiest effects and it suddenly dawned on me that nitroglycerin is the physiological antidote of cocain and of most of these anesthetic agents. Since then I have not seen any cases of toxic effect from the local anesthetics. I use with the injection, a small amount of the nitroglycerin and it physiologically controls the toxic condition. The toxic condition in cocain is due to cerebral anemia and the nitroglycerin directly controls that. There is no objection to using a little of the adrenalin which stimulates heart action and in that way tends to control the cerebral anemia, but there is nothing that will do it quite so satisfactorily as nitroglycerin.

Dr. C. F. Nassau, Philadelphia: I want to congratulate Dr. Smith on his most excellent paper. He is working in a field in which I personally have had a great deal of interest for nearly eighteen years. It is a subject that the operator unacquainted with the method must approach with care. If he lacks good judgment or if his enthusiasm leads him to believe that he can inject a few syringefuls of a local anesthetic and then go ahead and do his operation, he is going to be bitterly disappointed. The statements to be made to the patient have a great deal to do with the success of the procedure. There is a certain psychological element that must be taken into account. If we are in the habit of doing it, and have in the ward of a hospital a patient who has successfully come through an operation conducted in this way, we will have no difficulty in getting the next patient to be anesthetized the same way. But we should not operate on every patient under local anesthesia even if we would like to.

One of the points that Dr. Smith touched on is the fact that by eliminating the use of general anesthesia in certain cases, very often it means the difference between life and death to the patient. Take strangulated hernias: I do not believe a general anesthetic should ever be given for strangulated hernia, and in my opinion it is a matter of indifference whether cocain or novocain be used. It is true that novocain can be boiled, but if you use the little tablets devised by Dr. James F. Mitchell of Washington, which contain 1/400 grain of adrenalin and 3/4 grain of cocain, they can be carefully sterilized by dry heat and the danger of infection is lessened as compared with using adrenalin dropped from a frequently opened bottle. I agree with Dr. Smith that there is no increased amount of infection in wounds operated on in this way. There is one way in which wounds must be guarded. The mere fact that we have an almost bloodless wound means that all the little capillaries are sealed up by the temporary action of the drug injected. This does not occur when we are using a general anesthetic. All bleeding points, even the most minute, must be ligated with very great care. Furthermore, the tissues are edematous; they contain abnormal fluid, and it is my practice, even in thin people, to put tiny drains subcutaneously to provide for the serum drainage. In other words, you must introduce this little safety valve, and having done that, I believe that there is absolutely no difference in wound healing.

It sounds well to hear Dr. Smith talk about all the operations done in this way, and they can be done, but they have to be done on specially selected cases, and always will be. There are certain parts of the abdominal contents which cannot be pulled on without giving so much pain that the patient will not stand for it. If you want a complete and thorough examination of the common bile duct, for instance, it is necessary to have some general anesthetic. In my opinion it is a mistake to use ether for that. The patient who has had even a few drams of ether is not always perfectly docile on awakening. He will move around on the table. If we use nitrous oxid our patient will be comfortable after manipulation. I think Dr. Smith should be congratulated on opening up a splendid field for further work.

Dr. Ernest Laplace, Philadelphia: I wish to express my conviction that infiltration anesthesia is a superior mode of anesthesia. In my mind it is superior to lumbar, intravenous or rectal anesthesia, all of which are local methods. In infiltration anesthesia we can guide, we can direct, we can inject as we please. We know when the anesthesia begins and ends. It is thorough. I will not quite agree with Dr. Nassau in putting cocain on a level with novocain. If I have the confidence I have in local anesthesia it is because I believe in the effectiveness and harmlessness of novocain in weak solution of 1:200 or even 1:400. Its application, however, is an art if we wish to obtain the result. We have to wait a certain length of time, sometimes ten minutes, in order to have a thorough anesthetic effect before we start to operate. There is no use in starting before that has come or we do injustice to the method. Nine days ago I did an amputation of the thigh under novocain and in a man 73 years old. He left the table not aware that anything had been done and joking. This is true of all the surgery of the extremities.

For abdominal surgery we must proceed in the same careful way; have a direct idea as to what we wish to do and not proceed to operate until the parts are ready for it. When the patient shows the slightest evidence of pain, infiltrate again. There is no shock. Why hurry up? It is ideal surgery. We can talk to the patient, joke with him, spend the necessary time doing the operation. We have acquired this habit of working in a hurry because we have been afraid of the general anesthesia. For abdominal operation we need something more. We proceed in the same way until we get to the viscera and such important parts of the body where pull on the mesentery means an uncontrollable pain which cannot be controlled with a local anesthesia. We can have our nitrous oxid apparatus there and as soon as we find we are getting near the point where pain is coming, start the nitrous oxid, cross the bridge and go on with the local anesthesia. I believe we have reached a time in surgery where anesthesia absolutely, or nearly so, has the element of danger eliminated and ideal surgery can be practiced because we have the time to do our work, not hurriedly, but in an artistic way.

Dr. George Erety Shoemaker, Philadelphia: It is in small details that success comes. The general victory has been won by local anesthesia. One of the small details will avoid an annoying accident. An unaccustomed nurse must not get the adrenalin solution in without mixing with the other elements of the solution. Otherwise local necrosis may follow. A point in gynecology is that, if something very superficial has to be done (for instance, repair of torn sphincter ani) and there is any reason for giving a local anesthesia, it can be very well used, but in the more extensive plastic operations which are so often needed, including the repair of the anterior vaginal wall and the high amputation of the cervix and the thorough suture of separated fascial and muscular planes, local anesthesia is not in my hands very satisfactory.

Dr. S. G. Gant, New York City: I wish to substantiate what the reader of the paper has said, except regarding abdominal work, which is impracticable under local anesthesia. Operations on the skin and anorectal regions can be performed under sterile water or anesthesia produced by the injection of a weak solution of eucain, stovain and novocain. Cocain is very much more toxic than the agents named. Personally, I employ a ⅛ of 1 per cent. solution eucain in all my rectal work in preference to water anesthesia, because the initial injection of the latter induces slight pain. Quinin and urea is effective and prevents postoperative pain but is objectionable since it causes sloughing or delayed healing of the wound.

The average rectal operation under local anesthesia requires not more than ten minutes and the patient is able to walk back to his room. It is a mistake to tell the patients that they will have no pain because one injection hurts some, but patients do not jump if told when it is to be made.

I precede infiltration anesthesia by the administration of ¼ grain of morphin to prevent or control postoperative suffering. If one learns the technic there is no difficulty in operating on the more common anorectal affections under local anesthesia. To be successful in the work one must know exactly what is to be done before the parts are infiltrated; I do not employ adrenalin in the solution since it contracts the vessels during operation which is later followed by relaxation and troublesome bleeding.

Dr. Kate W. Baldwin, Philadelphia: I wish to add my approval of using local anesthesia for operations. I am sure that general anesthesia is used where local anesthesia would have been better. We all have our particular fads and ways of doing things which perhaps in our hands are all right and in somebody else's not so well, but local anesthesia should replace general anesthesia in more cases.

Dr. Smith, closing: I quite agree with Dr. Nassau that not all cases are suitable for local anesthesia. The judgment necessary for this selection varies with the experience of the surgeon. As suggested by Dr. Nassau, there are certain cases in which the operation should always be done under local anesthesia if the surgeon wishes to do his full duty to the patient. Strangulated hernia and operations of any character on the weak, debilitated or aged belong to this class.

When local anesthesia is properly used the patient leaves the operating room in about as good condition as he entered. Ether anesthesia has not used any of the margin of safety which is much reduced in cases of this type. This one factor often means the success or failure of the operation.

There is a second class of cases where local anesthesia should be used if the surgeon wishes to protect his patient from the various disagreeable features and possible complications associated with the use of ether. There is a third class of cases where local anesthesia should be considered as a possibility. This class broadens with the experience and enthusiasm of the operator. I believe that every surgeon who really learns the technic of doing operations with infiltration anesthesia becomes an enthusiast. There is a peculiar pleasure in seeing the patient leave the table comfortable and happy. Visit him an hour later and there is the same comfort and contentment. These results are obtained by observing the various points in technic as outlined by Dr. Gant. Proper infiltration by the right kind of needle and syringe, gentle handling of tissues, sharp dissection and the avoiding of pulling or traction are points of technic which must always be observed. If the patient has been saturated with the "psychology of the local game" and the technic is right, almost any operation in surgery can be done with this method of anesthesia.

CLOSURE OF FECAL FISTULA BY EXTRAPERITONEAL METHOD *

C. F. NASSAU, M.D.
PHILADELPHIA

In a small percentage of operations for the cure of suppurative or gangrenous conditions of the appendix, a fecal fistula will develop. In many cases a fecal leakage is transitory. In others, Nature brings about a cure after a considerable period. We have remaining with us for consideration the occasional patient in whom a small fistula persists, that does not yield to any method of ordinary treatment, whatever that may be. Any method by which we can cure this fistula, without putting the life of the patient in jeopardy, should receive serious consideration. Unfortunately, no one method is applicable in all cases. There is a vast difference between a closure of a fistula of the small bowel and one in the large bowel.

The determining factor in the choice of an extraperitoneal operation depends, to a great extent, on the depth of the fistulous tract. The ideal condition necessary for the application of the method that I have used for the cure of fecal fistula involving the large intestine, is that the bowel must be adherent to the abdominal wall without the interposition of coils of small intestines. For the easy application of this method, you must have a direct fistulous opening through the abdominal wall, with the large intestine adherent to the parietal peritoneum. Fortunately, just such a condition as this exists in many postappendiceal fecal fistulas. Such fistulas do not heal spontaneously, nor can they, as a rule, be healed by cauterization. Fortunately, the deep fistulous tracts do, as a rule, heal spontaneously. In the average operation involving the free exposure of the general peritoneal cavity for the closure of a fecal fistula, it is, I believe, wise to use a small drain. This makes a weak spot in the wound, and the patient faces the prospect of a subsequent hernia. Now, if the fistula can be closed without opening the general peritoneal cavity, it is possible to dispense with drainage and make a firm closure of the abdominal wound. If healing follows by first intention, well and good. If there should be wound infection, it does not necessarily mean that the fistula will break down, although, of course, suppuration will predispose to subsequent hernia. While, in the majority of cases, it will be necessary to use general anesthesia, particularly in stout persons, yet there will be patients on whom it is perfectly feasible to operate under local anesthesia.

I have performed the operation that I am about to describe in four cases.

Under either general or local anesthesia, an incision is made through the skin and fat down to the aponeurosis of the external oblique. The skin scar should be excised. As the edge of the fistulous opening is reached, the redundancy of skin on either side is cut away, and after careful disinfection of the outer end of the fistulous tract with carbolic acid and alcohol, the top of the tract is closed by sutures, so as to prevent the soiling of the wound. The aponeurosis of the external oblique is then carefully cleaned and a circular incision made close around the fistulous tract, very much in the same way that we circumscribe the tract of a fistula in ano. I have not found the insertion of a probe into the fistulous tract is of any great amount of assistance as compared to the freedom from infection when not using it. Layer by layer, the abdominal wall is dissected away from and close to the fistula.

Under ideal conditions, after going through the edges of the retracted muscular layer, one comes down on a layer consisting of the following fused structures: transversalis fascia, parietal peritoneum and the peritoneal covering of the bowel. When the operation has gone nicely, sometimes a little cone-shaped process of cecum can be pulled up into the wound, without having opened into the general peritoneal cavity. The fistula is now amputated in exactly the same way that one deals with an appendiceal stump. The tract is crushed and tied off close to the bowel wall. This small area of the wound

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* Read before the Section on Surgery of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 21, 1916.

is wiped out with a little pure alcohol on a sponge.

Now the essential part of the operation is before us: the folding in of the wall of the bowel by row after row (usually three rows being employed) of a No. 0 chromicized catgut suture. I have always preferred to use interrupted sutures. Just as soon as the protruding cecal wall is folded down out of sight, then, with a heavier catgut suture the deepest layer of the wound is picked up at one end, very much as if it were open peritoneum, and a continuous suture of the depth of the wound is made from end to end. The internal oblique and transversalis muscles can now usually be freed, and brought together or overlapped by appropriate suturing. In the last patient, on whom I operated under local anesthesia, the aponeurosis of the external oblique was overlapped with fine mattress sutures and the free edge held down with a few interrupted sutures. In this case, healing was by first intention, and the man has a thoroughly strong abdominal wall, with, I hope, no prospect of any future hernia. In this case there had been a very free fecal fistula following the removal of an appendix from a recurrent appendiceal abscess.

Naturally, the patients subjected to this little procedure suffer only a trifling amount of pain, and their lives are, humanly speaking, in no way put in jeopardy. Presuming that failure to close the fistula ensues, the patient is no worse off than he was before, he has not lost any prospect of cure, and one can always do the more formidable operation. I may say that in none of the cases operated on in this way has there been failure to close the fistula.

1831 Chestnut Street.

DISCUSSION

Dr. Ernest Laplace, Philadelphia: The question Dr. Nassau brings up is most interesting. It is well that he has brought up forcibly the differentiation of these various fistulas and suggests a method which in itself is bound to be a very successful method, although limited to a very small number of cases. Therefore, if he has done nothing else he has at least drawn attention to the fact that we should differentiate among these fistulas and select those that are amenable to treatment.

VACATION LAND 'WAY UP IN MAINE

There is a big demand for the illustrated book which is published annually by the Bangor & Aroostook R. R. It is styled "In the Maine Woods 1917" and contains every conceivable thing that one wishes to know about the delights of the easily accessible deep Maine woods. Colored sectional maps, list of fishing waters, with information about guides, camps, rates; breezy articles of actual experiences abound in its pages. It is mailed for 10 cents. It cost many times that to produce it.

THE RELATION OF THE RECTUM TO FUNCTIONAL ABDOMINAL DISTURBANCES *

ERNEST LAPLACE, M.D.
PHILADELPHIA

It has been aptly said that the duty of a good consultant is first to agree with the diagnosis already made, and secondly to examine the rectum. Facetious as this may sound, the second part at least is in many instances literally true. Abdominal symptoms unaccompanied by any subjective rectal symptoms may be due to a rectal condition whose presence is unsuspected, and the recognition of which may clear up a very obscure case.

The lymphatics and venous circulation of the rectum account for the ease with which toxins are absorbed and find their way in the general circulation, while the complex innervation of the rectum may account for many reflex symptoms, so misleading as not to suggest their possible origin in the rectum. The fibers of the sympathetic in the rectum form anastomoses with the splanchnic nerves, the vagus and pudic branches of the cerebrospinal system. General constitutional effects or autointoxication may be marked.

Many have doubted the absorbing power of the rectum. It is here unnecessary to discuss this point to a nicety. What we do know from experience is that the rectal contents may be absorbed either in the rectum itself or after having ascended into the sigmoid and colon. The marvelous results of the Murphy drip by which the saline solution percolates through the rectum into the peritoneal cavity and saturates dressings is a sufficient proof of this assertion. Constipation usually accompanies atonic stasis, and it is therefore difficult to differentiate between the two, constipation being the terminal condition of colonic stasis. We see at once the possibility of cholecystitis, gastric ulcer, pancreatitis, appendicitis; membranes, adhesions and kinks sooner or later resulting from this as more recent investigations have demonstrated. We know that certain anemias, chlorosis, pernicious anemia, have been suspected as finding their origin from what would ordinarily be styled constipation but really is intestinal stasis.

It is almost a clinical misfortune that there are no sensory nerves in the sigmoid and upper rectum but the filaments of the vagus and sympathetic so anastomose as to cause widespread reflex symptoms. The gastro-intestinal tract

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* Read before the Section on Surgery of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 21, 1916.

presents four sphincters: (1) the cardiac; (2) pyloric; (3) ileocecal; (4) anal. These sphincters being in nervous communication with each other it is no wonder that the irritation of the one might result in reflex spasms of one of the others, to be followed by symptoms characteristic of these conditions but whose primary cause would remain unsuspected. It may be asked why reflex symptoms of a grave character do not exist in every case of rectal disease. A strange nervous phenomenon is that the reflexes are not the same in every patient. It would seem that some patients are hypersensitive and others hyposensitive. The fact remains that the human system at times acts in a more sensitive way than at other times. It is also true that reflex irritation from the rectum may result in the spasmodic contraction of the cardia, the pyloric or the cecal valve as the following cases will illustrate:

Case 1.—A. M., aged 45 years, was referred to me April 2, 1913, complaining of inability to swallow at certain times and at times accompanied by painful sensation. The bougie would meet an obstruction at the cardia, but after a while would penetrate into the stomach. Diet and sedatives were resorted to with no effect; on further questioning the patient complained of a fulness about the rectum with alternating constipation and diarrhea. An examination of the rectum revealed a pediculated papilloma about the size of a walnut hanging about 2 inches above the internal sphincter and barely within the sensitive area of the rectum. The growth was removed with the thermocautery. Before the patient returned home, that is, two weeks after the operation, the cardiospasm had disappeared and has not returned.

Case 2.—J. Mc., admitted to the Medico-Chirurgical Hospital with a diagnosis of pyloric obstruction based on the clinical symptoms and the Roentgen examinations. The main symptoms were pain in the right hypochondriac region and uncontrollable vomiting. At the operation no signs of ulcer or malignancy were found and I performed a gastro-enterostomy for the symptomatic relief of the patient. He made an uneventful recovery from the operation with complete relief of his symptoms. On the eighteenth day, however, vomiting began again and became as violent as before. Absolutely nothing could be kept on the stomach. Indeed, I was puzzled to know what could have brought on the severe symptoms after an apparent recovery. On administering the Murphy drip the patient had complained right along of pain in the rectum, but no notice was taken of this inasmuch as it is irritating to so many. When, however, the vomiting had lasted so long that the patient had become extremely weak, an examination of the rectum was made and a small ulcer was found about the level of the internal sphincter. Under nitrous oxid anesthesia the sphincter was dilated and paralyzed. The vomiting ceased immediately. The patient began to eat normally, and he progressed to a complete recovery without vomiting once more after the operation. I have asked myself whether the gastro-enterostomy were not necessary.

For many years I have wondered why a case presenting pain in the right iliac region, sometimes constant, sometimes intermittent and coming to operation for chronic appendicitis revealed an absolutely healthy appendix (no typhlitis or adhesions), in fact nothing organic to account for the symptoms that were clearly present. Of course the appendix was removed. In one instance, that of a woman thirty-five years of age, the symptoms did not subside. On examining the rectum she was found having hemorrhoids which were painful but in her judgment had given her no concern compared with the pain which was referred to the region of the appendix. After the removal of the hemorrhoids the right iliac pain disappeared. The explanation evidently was a reflex spasmodic condition of the ileocecal valve causing pain from the kinking of the ileum and temporary stasis with the dilatation of the ileum or ileal colic.

I have a series of four cases of dyspepsia in which hyperchlohydria accompanied a fissure of the anus, which had not been thought to have any relation with the gastric symptoms and was therefore overlooked. The gastric symptoms disappeared when the fissure was cured by dilatation. This being the case, we may have the following sequence in a given patient — a simple fissure, spasms of the ileocecal valve, intestinal stasis and any of the multitudinous end results which we now may follow.

These are illustrative cases and suffice to impress me with the necessity of making a thorough examination of the rectum in every abdominal case which comes for operation. Of course in the majority of cases the rectum will be found normal. But we may now and then be surprised by finding an unsuspected condition, which if removed may cure our patient and avoid a more serious abdominal interference.

1828 South Rittenhouse Square.

DISCUSSION

Dr. Reed Burns, Scranton: I think we are all under obligation to Dr. Laplace. Much of what he has said I confess is quite new to me. We have all known that certain diseases can produce reflex symptoms, but that these obscure conditions of the rectum, which produce apparently no local symptoms, should produce such marked reflex disturbances in the upper part of the alimentary canal is quite new to me. But when we stop to think, I can see no reason why the position is not true and tenable. His cases show it is tenable. We all know the influence of chronic appendicular disease on the stomach and duodenum. We know that the innervation of the abdominal viscera has one great common center and that the different parts are connected in such a way that irritation in one part will produce disturbances in another.

But that cardiospasm can come from an obscure rectal trouble is new to me. I am glad to know it. We know that disturbances in this system can produce pyloric spasm and further that spasm of the small intestines, which may have been present in the case which the doctor reports where gastro-enterostomy was done, can be present and due undoubtedly to reflex disturbance. We have been in the habit of attributing this spasm to local irritants and this idea is readily understood because we know that the terminal nervous filaments in the intestines are unprotected by a neurolemma. Therefore, when toxins in the intestines are absorbed they get at the terminal filaments very easily. All of us who have done much abdominal work have seen cases of spasm of the small intestines where there was nothing in the symptoms pointing to toxins as the cause. In these cases the trouble may have been somewhere else. Whenever we suspect gastro-intestinal disturbances we should consider the whole alimentary tract. We may have pyorrhea, we may have diseased tonsils, we may have chronic renal or gallstone trouble. It may be that the early symptoms of locomotor ataxia are making us think that we have gallstone, gastric or intestinal trouble. The investigation must be thorough. Microscopical and chemical examination of the contents of the stomach and feces is necessary. A thorough examination of the patient all over is equally necessary and when the work is done and well done we can come to pretty definite conclusions as to the disease and its causes.

Dr. Laplace, closing: I wish to thank Dr. Burns for laying down what ought to be a law that before proceeding to a radical operation, that the examination should not have stopped at the colon, that it should include everything, it should be a gastroenterological examination complete. If we could only bear that in mind we will avoid many shortcomings. We should give a little attention to the sympathetic. We should not believe that because a patient does not suffer he is not a sick man. Suffering is an interpretation of disorder through sensory nerves. We have a system more important which existed in animal life before the finer development of the nervous system and brain. It has its disorders. It has its appreciation and its manifestation of disorder in a sense of "goneness," so-called neurasthenia. This may be reflected at some spot which is plentifully supplied with cerebrospinal filaments. It is being felt by the silent sympathetic.

CHRONIC ULCER OF THE STOMACH AND DUODENUM, FROM THE STUDY OF TWENTY-FIVE OPERATIVE CASES *

HERBERT B. GIBBY, A.B., A.M., M.D., F.A.C.S.
WILKES-BARRE

Gastric and duodenal ulceration is by no means an uncommon affection, and is at the present time receiving considerable attention from the profession generally, as its symptoms are being more widely recognized and appreciated. As cases of acute ulceration rarely reach the surgeon, except where a perforation has occurred, and as all of the cases in this series are of the chronic type, it is to the chronic ulcer that we particularly wish to direct your attention.

SYMPTOMS AND DIAGNOSIS

The diagnosis in this series was based on the following factors:

1. *The symptoms and history.* The most prominent symptom, and the one that led most of these patients to consult a physician, was *pain*, which was variously described as "gnawing" or "boring," or as a "severe burning" definitely located in the epigastrium, occurring from one-half to three hours following a meal and being relieved by the next meal for a similar period. The severity was in several cases so marked as to require morphin hypodermically for its relief. Several patients stated that the pain was aggravated by exercise of any sort, or while standing. Usually associated with this distress was the eructation of sour gas, heart-burn, nausea and, in many cases, vomiting. Two patients vomited large quantities of blood, one nearly succumbing to the hemorrhage, while eleven others exhibited slight hematemesis. Pain, however, was the only symptom common to all the cases.

All of the cases gave a history of repeated attacks, with a longer or shorter period of complete relief from all symptoms. During the attack, a loss of from 10 to 25 pounds in weight occurred, which was usually recovered during the period of relief. The interval between the attacks gradually grew shorter, and the duration and severity of the symptoms increased, until the patient applied for surgical relief. In many instances, a diagnosis could be made from the history alone.

2. *A test-meal to ascertain the presence or absence of retention, together with air distention of the stomach, percussion, palpation, etc.* This meal consisted of rice and raisins, and the stomach tube was used six to seven hours later. A residue of the meal after six hours was accepted as an evidence of retention. With the tube still in the stomach, the organ was inflated by means of a bulb syringe (with the patient in a reclining position) and the shape, size and location of the stomach, the presence or absence of a tumor, and any points of tenderness, were determined.

3. *The usual test-meal for chemical examination of stomach contents.* This was carried out in the early cases of the series, but proved of so

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* Read before the Section on Surgery of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 20, 1916.

little additional value in making the diagnosis, that it has not been so regularly employed in the later cases.

4. *Fluoroscopic and radiographic findings.* These, in the hands of a competent roentgenologist, are of the greatest value in arriving at a correct diagnosis, and I consider them only second to a carefully taken history.

SURGICAL VERSUS MEDICAL TREATMENT

The question whether the treatment of gastric and duodenal ulcer is medical or surgical has excited a vast amount of discussion.

The tendency among surgeons, generally, is to postpone operation until a not too prolonged period of medical treatment has been tried and has failed, and among internists, to advise operation after a thorough medical and hygienic course has been unsuccessful.

Treatment, to be curative, must take into account the causative factors, and eliminate them, as well as their results. The etiology of gastric ulcer is complex, and not thoroughly understood, but judging from the experimental studies of Durante,[1] and reasoning from analogy with ulcer on the surface of the body, their origin depends on (1) some circulatory disturbance, (2) insufficient innervation, and (3) repeated irritation; the latter may be chemical, mechanical, or bacterial in character.

This complexity of symptoms produces the acute ulcer, which, if it does not perforate, can no doubt be healed by medical treatment, or without any treatment, but if the underlying predisposing factors are not removed, the ulcer recurs sooner or later, and the development of scar tissue in the repeated healing processes soon produces the chronic ulcer, which consists of a mass of hard scar tissue surrounding a thinned out central portion with an ulcerated mucous surface.

Can such an ulcer be permanently cured by medical treatment? Basing an opinion on its etiology and pathology, I would answer, *No,* as medical treatment can only modify and not remove the causes and their resulting scar tissue. The bacterin treatment, with the streptococcus viridans, is only in the experimental stage, and sufficient time has not elapsed to judge of results.

Does surgery meet the requirements necessary to effect a cure? If properly applied, *yes,* as it removes the ulcer itself by folding in or excision, thus bringing into apposition healthy tissue with normal innervation and circulation, and by providing sufficient drainage through a gastro-enterostomy it eliminates irritation. It further does away with the danger of perforation or hemorrhage, and the incidence of malignancy on the edge of the old ulcer.

OPERATIVE TECHNIC

For duodenal ulcer, we have folded in the hardened thickened area with a few mattress sutures, and made a posterior gastro-enterostomy. This has given excellent results, and is a comparatively safe and adequate procedure, in view of the fact that there is but little, if any, tendency to malignancy in the duodenum.

The early cases of gastric ulcer were operated on in the same manner, but in the more recent operations the ulcer has been excised, in some cases with, in some without, an anastomosis with the intestines. Von Eiselsberg,[2] Mayo[3] and others have reported a tendency to malignant degeneration in old stomach ulcers that were not excised, and some cases in which the ulcer was excised but no gastro-enterostomy made had to have this procedure carried out later in order to produce a satisfactory result; this occurred in one of my own cases.

It would seem, therefore, that the proper method of operation in gastric ulcer, even if no obstruction is present, is either complete excision if the ulcer is large, or destruction with the Paquelin cautery as suggested by Balfour[4] if the ulcer is small, combined with a gastro-enterostomy.

Some points in the technic of the operations are of interest, as they no doubt contribute to the satisfactory results. The anastomosis is made as close to the pylorus as can be conveniently done, with an opening at least six centimeters in length, running obliquely from the lesser toward the greater curvature, and usually isoperistaltic, although I do not consider this latter of much importance. The opening in the jejunum is placed as near the origin of this portion of the intestine as possible, without producing too much tension during the operation.

Formerly, a peritoneal suture of linen or fine silk was used, but as the unabsorbable suture has been held responsible for the occasional occurrence of gastrojejunal ulcer, it has been entirely discarded, and at the present time a peritoneal suture of No. 0 chromic gut, with a through-and-through suture of No. 1 chromic gut, is employed.

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[1] Durante, Luigi: The Trophic Element in the Origin of Gastric Ulcer, Surg., Gyn. and Obst., 1916, xxii, 399-406.

[2] Von Eiselsberg, F. A.: The Selection of the Method of Operation in the Treatment of Gastric and Duodenal Ulcer, Lancet, 1914, ii, 296.

[3] Mayo, W. J.: Gastric Ulcer, Jour. Am. Med. Assn., 1915, lvi, 1069-1073.

[4] Balfour, D. C.: Treatment of Cautery of Gastric Ulcer, Surg., Gyn. and Obst., 1914, xix, 528.

SUMMARY OF RESULTS

Total number of cases	25
Male	8
Female	17
Duodenal ulcer	20
Gastric ulcer	5
Duodenal ulcer complicated with gallstones (gallbladder drained)	2
Duodenal ulcer complicated with gastroptosis (Beyea operation)	2
Died	2 (8%)

In about one third of these cases, the ulcer had perforated, but the opening was plugged by the omentum.

Of the twenty-three patients living, I have had communications from nineteen within the last three weeks, and have seen the remaining four within three months. Their statements follow:

	No. Cases	Per Cent.
Most prominent symptom, pain	20	80
Entirely cured	17	68
Improved (some markedly)	6	24
Cured within three weeks following operation	11	44
Cured within from two months to one year, following operation	6	24
Still have acid eructations	3	12
Still have abdominal distention	3	12

Of the seventeen patients who state that they are entirely cured (some over five years), eleven required no treatment after leaving the hospital, and only one patient was under treatment for one year, and the remaining five were entirely relieved in from two to six months.

Only three patients of the twenty-three still have eructations of sour gas, showing a high percentage (88 per cent.) of relief from this distressing symptom. One patient that was not cured was operated on in 1913 for hour-glass contraction of a stomach ulcer by the gastrogastrostomy method. She was relieved for some time, but the symptoms gradually returned, and two years later, the Roentgen-ray examination having shown a return of the hour-glass contraction, a partial gastrectomy, removing a complete section from the central portion of the stomach, was performed, together with the folding in of a duodenal ulcer and a posterior gastro-enterostomy. Her relief was only for a short period, and last month, the Roentgen ray having once more demonstrated the presence of an hour-glass contraction, she was operated on again. A vast mass of adhesions were found binding down the stomach, which, when finally liberated, was found to be normal, the duodenal ulcer having entirely disappeared, the intestinal opening patulous, and only the slightest thickening marked the line of union between the two halves of the stomach.

All of the other patients not entirely cured were improved by the operation, some very markedly. I have not found it necessary in any case to "undo" the gastro-enterostomy.

When we consider the suffering and disability, the tendency to chronicity, the danger of perforation and malignant degeneration of gastric and duodenal ulcer, in view of the results obtained, and the comparatively low mortality, the operative treatment of these cases appears to me logical and justifiable.

DISCUSSION

Dr. Herbert D. Gardner, Scranton: Dr. Gibby has given us a practical paper on a practical subject. He has operated on twenty cases of chronic ulcer of the duodenum and five of the stomach. That is about the usual proportion, three or four times as many ulcers of the duodenum will be found as ulcers of the stomach. Dr. Gibby has not told us the cause of ulcers in this region. He does not know, neither does anybody. In Dr. Gibby's early cases he relied more on the laboratory tests than he does at present. He has found that pain is the most prominent symptom, the most to be relied on. Dr. Gibby excises the ulcer if it is in the stomach for fear of malignancy. As cancer of the duodenum is very rare, he simply inverts the ulcer with a purse string suture doing a gastrojejunostomy in either case. Dr. Gibby uses fine chromicized catgut for his sutures; linen has caused trouble. I can add very little from experience to this paper. I might draw on my imagination, but as this is a report of work actually done, I will simply add one point which I have found of great advantage. Make your incision under local anesthesia. In favorable cases you can do all your work. In the more difficult ones you can make your diagnosis and plan your work which often takes half the time. You can now give a general stage operation which is being advocated unnecessary. What W. J. Mayo calls "the acid test of sight" under local anesthesia with the improved technic as advocated by Dr. Gibby, makes the cure of this trouble quite simple and easy.

Dr. Francis P. Ball, Lock Haven: I am more and more convinced that gastric ulcer is much more common than was formerly supposed. It is just like anything else. If you look for it you are much more likely to find it. I remember when an ectopic pregnancy was the event of a life time in the experience of our older physicians. I now operate on eight or ten of these cases a year myself. We are able to find them, whereas formerly they were overlooked. Just so with gastric ulcer. A recent work quotes the combined statistics of 400.000 cases as showing ulcer diagnosed 1 per cent. of the cases, while in the combined statistics of 59,450 necropsies 4.4 per cent. showed ulcer healed or unhealed. More than four times as many showed ulcer at necropsy as were diagnosed before death. This would indicate that we are missing the diagnosis in a great many of these cases. I believe that to be a fact, and that a more careful study of our cases would reveal a greater number of gastric ulcers.

The diagnosis is not always so easy, and while we may at times feel that the clinical history alone is sufficient, it would hardly seem safe to depend on it in the great majority of cases. The history in a good many cases is so indefinite, and the symptoms so obscure, that in many cases we could not make a positive diagnosis. Pain, the most constant symptom, and sometimes almost the only symptom of which you can get the patient to complain, is associated with so many other conditions that it would be unsafe to depend on it alone. I can recall just now several cases in which the patient complained of pain coming on some time after meals, with hyperchlorhydria, heartburn and nausea; the diagnosis from the clinical history seemed clear, but at operation, no lesion of the stomach was found. I recall seeing Dr. Rodman operate on a case in which there was marked pylorospasm together with other symptoms of ulcer, in which no reason for the symptoms was found. Several times I have diagnosed ulcer only to find gallstones. In only about 30 per cent. of the cases do we have hemorrhages. If we have pain coming on from one to two or three hours after meals with hemorrhage and marked hyperacidity during the attack, and the patient complaining of dyspeptic symptoms with sour stomach and acid eructations during the interval, I think we are justified in the diagnosis of gastric or duodenal ulcer. Otherwise it would seem best to me always to have a good Roentgen ray to assist in the diagnosis.

There can be no question, I think, as to the proper treatment of chronic ulcer. It is without question a surgical condition, and for the reasons spoken of by Dr. Gibby. It is pretty well settled that a good many chronic ulcers finally degenerate into cancer, and we always have the danger of serious hemorrhage and perforation. There is no way to combat these dangers except by surgical means. There are a great many acute ulcers, more I am sure, than we realize, that can and should be treated medically. Fully 80 per cent. of acute ulcers are said to be cured by medical means and my personal experience with these cases has been so good by medical means, both as to relief of the patient's symptoms and continuance of apparent cure, that unless the history bears out the diagnosis of chronic ulcer, I always like to try a course of medical treatment first. The diet and rest are very important in the treatment of these cases, and belladonna and bismuth, both in full doses, has given me very good results.

Dr. J. A. Lichty, Pittsburgh: The paper presented by Dr. Gibby is certainly a very good one and shows excellent results. The title of the paper might be changed and would probably indicate the purpose more fully by speaking of chronic peptic ulcer instead of chronic gastric and duodenal ulcer. In the little work I do in teaching I find it is better to hold to the term peptic and to try not to differentiate too closely between gastric and duodenal ulcer. But this is rather aside. When it comes to the treatment of chronic peptic ulcer I am of the opinion that it is a surgical condition. This would mean that every patient with a chronic peptic ulcer should be operated on forthwith. Now that would be quite an undertaking so long as there are two parties concerned, the patient and the surgeon. It is not always possible to persuade the patient to submit to an operation, especially if he is reasonably comfortable. Some other conditions besides the mere knowledge of the presence of the ulcer must be evident to the patient. The indications for operation in peptic ulcer are very definite and surgeons and internists agree on them. But there is a borderland class when the indications are not so definite; it is the class of chronic cases, having no definite complications and yet not entirely well with medical treatment. If surgical procedure were universally favorable in chronic gastric ulcer, one might insist that these cases of unsatisfactory results should all be operated on, but inasmuch as many are not entirely relieved by surgery either, one hesitates to advise operation routinely.

Dr. Charles E. Thomson, Scranton: It seems to me that there is an element of danger in making the diagnosis of gastric ulcers with a bulb syringe, as Dr. Gibby recommends. I am not familiar with any syringe by which we can gage the amount of pressure we are putting on the stomach wall and I am equally uncertain as to the amount of pressure an ulcerated stomach wall is going to stand. I have in mind a case that I operated on recently. The patient came to us in the first place from the historian and roentgenologist with a diagnosis of gastric cancer. On opening the abdomen we found the stomach adherent to the abdominal wall and the very slightest manipulation revealed an ulceration 1 inch in diameter and the stomach contents poured out into the wound. We packed this lightly with gauze, did a gastro-intestinal anastomosis and the patient made a good recovery, but I wondered when I heard Dr. Gibby's paper what might have happened if an attempt had been made to dilate this stomach with a bulb syringe.

Dr. Gibby, closing: Adhesions are very apt to occur in many of these cases. In regard to the diagnosis by means of inflation of the stomach with air: that I pursued in the early cases but have practically discarded it since the diagnosis with the Roentgen ray has proved so satisfactory. I depend very largely for my diagnosis, at the present time, on the Roentgen-ray findings and the symptoms.

DO YOUR BIT

War unites us. There are no classes and no shirkers among doctors in warfare. Whatever any physician felt and believed concerning the European war, and however he may shrink from the conflict, war is now declared and we face our duty in a campaign now our own intimate concern. We are all loyal Americans and proud of our country. Let us make it proud of us.

This journal wants to do its bit, and we hold our pages open for whatever service we can render to our government and to the physicians under the colors. And may we urge all to lend a hand. War today is a complex industry, and fighting is only a part of it. Doctor, you may be too old or too infirm to serve in the camp and ranks; you may be disabled and unable to pass the physical examination; you may be more needed at home than in the army or navy. But you can do your bit—something to aid, in some place or in some way. Don't rest until you find what that something is.

Let us hold ourselves level, without hysteria, unhappiness or criticism. Now is no time for the immaterial, controversial or unworkable; but it is a time for hard study in medical and surgical efficiency, for the saving grace of common sense, and for unselfish devotion.—*Medical Council.*

THE COOPERATION OF PHYSICIAN AND SURGEON IN THE AFTER-TREATMENT OF PATIENTS

OPERATED ON FOR DISEASES OF THE GASTRO-INTESTINAL TRACT *

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AND
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In this paper we present for consideration the advantages of closer cooperation of physicians and surgeons in the postoperative treatment of certain groups of cases. The usual plan followed in many hospitals, after a patient has been transferred from the medical to the surgical side is for the physician to efface himself from all relationship with the patient. This method, which we say advisedly is the customary one, obtains particularly in hospital routine among ward patients, and it is this class which we have in mind throughout this paper. We raise the question whether the physician, who transfers the patient for a serious surgical procedure, should complacently believe himself to be freed of further responsibility, or should share with the surgeon many of the difficulties arising in the postoperative care of the patient. Greater cooperation, too, should follow in those instances in which the physician is called on for an opinion in a case, surgical from the beginning, but in which he again drops out after perhaps a single examination of the patient, and the surgeon again assumes the entire direction of the case.

Such a practice, we believe, is unfair to the patient, increases unnecessarily the burden of the surgeon, and ignores certain potentialities of the internist which may be valuable to both the patient and to the surgeon. We cannot, in this paper, bring forward for consideration details of postoperative treatment applicable to each individual patient, treatment based on the type of operation performed, on the morbid process for which operation has been recommended and on the innumerable complications which may arise following surgical procedures. We prefer, in this connection, to refrain from the citation of the history of any individual patient or group of patients, which might illustrate the questions to be considered in this paper. We propose, however, to draw attention to certain conditions arising in the postoperative care which can best be understood when physician and surgeon cooperate during the patient's stay in the hospital and, during the many weeks following operation, when the individual is experiencing the discomfort arising from the readjustment of his organism to new conditions.

The physician and the surgeon who have once consulted in hospital work about any case should regard themselves as being in consultation until the patient is discharged. If the same physician remains in control of the patient after he has left the hospital, the after-treatment problem is simple; but if the patient returns to his family physician or another not familiar with the individual's idiosyncrasies, then it becomes the duty of the hospital physician to inform fully the one in charge of all important facts relative to the welfare of the patient. But in how many instances is this plan carried out and how frequently does the physician endeavor to learn all that has been done for the patient during his stay in the hospital?

The proper diet for a patient who has undergone an operation for a gastro-intestinal condition can only be determined by consideration of the morbid process, the type of operation, the individual's idiosyncrasy toward certain foods and his gastric and intestinal chemistry. It is none too rare an occurrence to find the patient in a surgical case receiving certain articles of food, which would have been regarded as wholly unsuitable if the gastric chemistry, for instance, had been studied. Therefore, we condemn the routine of prescribing liquid, semi-liquid, soft, select, house or whatever the diets are named in the various hospitals, to all patients regardless of their gastro-intestinal conditions. For instance, a patient whose stomach has been secreting a hyperacid hypersecretion may experience much discomfort from a cup of highly seasoned beef broth containing large amounts of extractives, whereas, properly selected foods would be less harmful and followed by less discomfort; or a patient with marked jaundice from an obstruction of the common duct is unable easily to digest certain articles of food, yet we find such individuals receiving, early in their postoperative life, yolks of eggs, butter and food containing more or less fat. A patient who has been under treatment for diarrhea from whatever cause, and who is transferred to the surgeon for an acute gastro-intestinal condition, should not receive the ordinary routine diet. A case of diabetes, or one of nephritis, or one of arteriosclerosis, or one of tuberculosis, or any patient suffering with any one of the diseases to which

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* Read at the General Meeting of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 21, 1916.

flesh is heir, requires as much individualism from the dietetic standpoint as he does from the surgical point of view. Innumerable conditions might be mentioned in this connection, but we are forced to avoid details.

As far as medication is concerned, this seems to be distinctly the province of the internist, but his advice should be followed only with the sanction of the surgeon who has to consider primarily the surgical aspects of the case. This applies to the treatment of diarrhea, constipation, nausea and vomiting, of flatulence, of gaseous distention, and of many more conditions too numerous to mention which are considered to be minor events in convalescence, but which are none the less disturbing to the patient, and may even jeopardize to some extent the surgical results.

We consider it unfair to the patient to discharge him from the surgical ward, believing him to be cured, and neglect to instruct him as to his mode of living during the ensuing six to twelve months, or even longer. From the standpoint of hospital statistics or records the surgeon is justified in regarding his treatment as successful, and is warranted in writing on the discharge card "cured." But is the patient cured? Can a patient with duodenal ulcer of many years' standing, who submits finally to an operation, and who leaves the hospital at the end of a month's time, in full possession of the same morbid process as before, and with the acquisition of a gastro-enterostomy, and perhaps a pyloric closure as well, can such an individual really be regarded as cured? How few surgeons have followed up their gastro-intestinal cases through months and years, and if they have, how many individuals were found who complained of a return of their former symptoms? We believe that comparatively few are immediately relieved by operation and that if the surgeon could have an opportunity of seeing these cases repeatedly following operation, he would be chagrined at the patient's recital of his physical troubles. In this connection, Rodman's[1] questionnaire addressed to 100 American surgeons regarding gastro-enterostomy for ulcer may be recalled, for the answers showed that, in the opinion of these men, the end results were frequently disappointing to the surgeon and disastrous to the patient, and that a number of perfectly satisfactory gastrojejunostomies, from an operative point of view, were followed a year or more later by malignant disease and death.

Gastric and duodenal ulcers are but two conditions where postoperative success is frequently wanting, but appendectomy, gallbladder operations, resections, plastic operations on the stomach and intestines are operative procedures where immediate benefit may not be secured. No patient, we repeat, is cured at the end of a month's sojourn in the hospital, after undergoing an operation for any abdominal surgical condition. He is not perfectly well, he cannot eat with impunity whatever he desires, he cannot do with safety everything he wishes, and for a long time during the reconstruction or readjustment period he should be regarded as a patient and treated as such. Censure for failure to achieve ultimate success in these cases may be directed at the surgeon, at the physician and at the patient, but least of all at the last named, if a rigid follow-up system is practiced. When all conditions of this system are met there will remain, of course, a group of patients for whose ill health and persistence of complaint no one can be reproved.

In the cases which we have studied and treated together, we have been repaid for our continual cooperation by uniformly good postoperative results. The patients on leaving the hospital should be informed, within reasonable bounds, as to the nature of his condition, the kind of operation performed, and should have explained to him why it is most important, for his future health, to report regularly for periodical and thorough examinations. Freeman in his admirable paper[2] has given in detail the instruction each patient receives on leaving the hospital, the advice including explanation of the discomfort which is sure to follow an operation, discomfort in many instances due entirely to the insult the body receives from the operation itself. Advice is given to avoid useless introspection and idle worry, to shun the counsel and suggestions of those who have had "exactly the same trouble." General advice is given regarding diet, social duties, visitors, rest and sleep, going up and down stairs, exercise, returning to work, etc., which is all very good advice indeed, but which we feel places too heavy a responsibility on the patient and tends to make him self-centered. In our opinion the burden should not be so placed, but should be borne entirely by the physician. It may be argued that "the family physician is not always a reliable guide, because of unfamiliarity with surgical questions or of lack of knowledge of the individual case," but this seeming objection can be readily overcome, by instructing the physician how he can best cooperate with the surgeon in such cases.

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[1] Surg., Gynec. and Obst., Jan., 1915, p. 25.

[2] Jour. A. M. A., 1913, xl, p. 1133.

Each patient should report at regular intervals to his physician, even though he believes himself to be in perfect health. These intervals may vary, but they should be every two to four weeks, or oftener, if the patient complains of any discomfort. At these visits a thorough history should be taken as to the physical state of the patient during the days and weeks preceding the visit, and a physical examination should be made each time. Questions should be searching and should primarily be directed toward the symptoms of the original complaint. The blood pressure, pulse rate, body weight and the blood and urine should be examined regularly. When there has been a simple operation like appendectomy, other laboratory examinations may be dispensed with, but when there has been gastrointestinal ulceration, the routine examination of the stools must be insisted on after the patient has been placed on a meat-free diet.

No case of gastric or duodenal ulcer is to be considered cured so long as blood is found in the stools, provided other sources of blood have been eliminated. So long as blood is present the patient should be treated as an ulcer case. If blood has been absent and again reappears, the above still holds good. Blood is frequently found when the subjective state seems to the patient to be perfect, but nevertheless occult blood cannot be disregarded and is a most important indication as to treatment.

When gastric symptoms are present, the stomach contents should be examined and use should be made of the Roentgen ray. The influence of operative procedures on gastric motility and secretion has been recently studied by Hamburger and Leach,[3] and among their conclusions they state that "nonrelief from surgical interference in gastric and duodenal ulcer is due to (*a*) lack of properly placed surgical indications; (*b*) lack of thorough and prolonged preoperative medical treatment; (*c*) failure to devise the proper surgical procedure to meet the individual case, and (*d*) *lack of prolonged postoperative medical treatment.*

The Roentgen ray should be employed in postoperative cases more frequently when there is complaint of any gastro-intestinal discomfort. Case[4] has demonstrated how valuable are Roentgen studies after gastric and duodenal operations, particularly in the diagnosis of acute obstruction of the small bowel, in the recognition of disturbances following gastro-enterostomy, appendectomy and ileocolostomy. Attention is directed to the frequency of gastrojejunal ulcers by Carman and Balfour[5] as a cause of disappointing results following gastro-enterostomy, and it would seem from their paper that were Roentgen-ray studies made earlier and more often, where any symptoms whatever are complained of, perhaps these ulcers would be recognized sooner and needless suffering be avoided.

Again referring to the unfavorable aftereffects of gastro-enterostomy, Hertz[6] described instances of too rapid drainage of the stomach, as causing epigastric fulness, diarrhea and general indefinite gastro-intestinal symptoms. But, on the other hand, the stoma may be placed above the upper level of the gastric contents, in which case nothing at all can leave the stomach. In both these conditions medical treatment is followed by marked benefit. For a lengthy and important consideration of this subject, those interested are referred to the article by Mathieu and Savignac.[7]

In conclusion, we do not urge on the physician and the surgeon any particular plan or method of cooperation in carrying out postoperative care of the patient. We have merely mentioned some of the more important indications and have presented the matter for general consideration and discussion, for having raised the question in our own work, we have found the answer to be that greater good to the patient is thereby obtained.

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DISCUSSION

Dr. John A. Lichty, Pittsburgh: I regret very much that Dr. Deaver is not here to open this discussion because I know he would have given us some very definite ideas in relation to the subject. I must say that from the paper presented I cannot find anything with which I would disagree in any way. I think there should be cooperation between the surgeon and the internist in postoperative work just as has been indicated by the authors of the paper. In fact, I would go further and say that the cooperation should be not only postoperative, but operative and pre-operative. Before the patient comes to the operating table the surgeon and the internist should meet and the internist should be present when the operation is done. We have all seen cases demonstrating the wisdom of this. A patient whose case we are studying will sometimes suddenly cease his visits and we learn later, for example, that he decided to have his appendix out. Later perhaps he returns with the same line of symptoms. This might not have happened if the surgeon and internist cooperated. I have also been present at operations in which the surgeon spent considerable time trying to "raise the cecum" in order to remove an appendix which had already been removed. This would not have happened and time might have been saved had the internist and the surgeon studied the case together.

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[3] Jour. A. M. A., 1915, lxiv, p. 1745.

[4] Jour. A. M. A., 1915, lxv, p. 1628.

[5] Jour. A. M. A., lxv, p, 227.

[6] Annals of Surgery, 1913, lviii, p. 466.

[7] Arch. des mal. de l'app. Dig., 1913, vii, p. 551.

In postoperative work the necessity for cooperation is especially marked. As I stated yesterday, in 126 cases out of 1200 to 1400 consecutive cases in my practice in the last few years the same symptoms were present as before operation. Some of these results, I believe, could have been avoided if there had been such care and supervision of the patient as were mentioned yesterday in the symposium in which Dr. Beyea took part and in which he said that in suspension operations the patient should be under observation for six months or a year. This is what happens if the surgeon and physician do not get together. The surgeon will say at the end of two weeks if the wound is healed that the patient is "well." The patient taking this at its face value will not see the family physician and much benefit to the patient will be lost because the family physician and the surgeon did not get together before the patient left the hospital.

I know that there is opportunity for meddling, and that the meddlesome internist is an abomination to the surgeon. I know also that there are surgeons so dogmatic in their way of after-treatment that the internist cannot get along with them. There is no use of talking about getting these two types to cooperate; reading papers and discussions will never bring them together. Reasonable men, however (as we all are), will get together and as a consequence will have the results there should be in these difficult cases. I regard the paper read by Dr. Speese as timely and one that should be thoughtfully considered.

HYDROPHTHALMOS *

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SUNBURY

Hydrophthalmos is a disease of childhood; nearly all cases are congenital; a few have been reported, said to have been traumatic. The disease is usually bilateral, but in my patient is unilateral, the fellow eye being normal.

In the consideration of the etiological factors of hydrophthalmos, I shall endeavor to draw a sharp dividing line between it and congenital glaucoma. I consider congenital glaucoma a misnomer, and believe that hydrophthalmos should be considered as belonging to the ectasias, and not to the glaucomas, for it has nothing in common with glaucoma except the increased intraocular pressure. It is no more glaucoma than is staphyloma with increased intraocular pressure. That increased tension is usually present is true, but whether this tension precedes or follows in the wake of the dilatation is rather uncertain. What we choose to call glaucoma is not in itself a disease, but a symptom complex, dependent upon variously deranged physiological processes, rather than upon anatomic defects, which is the case in hydrophthalmos.

Literature does not seem to give any very clearly defined causative factors of the primary ectasia, but rather appears to be content with descriptive and theoretical views, after the ectasia with consequent enlargement has taken place. Evidently there is good reason for this, as these eyes are not usually painful and are not enucleated during their simple ectatic state, so that specimens for study are rarely available. When they do come to enucleation it is after spontaneous rupture, spontaneous phthisis bulbi, or some inflammatory process due to trauma or uveal disease has taken place, and after which the histologic structure has been greatly altered. Until microscopic studies of beginning hydrophthalmic eyes are made, the cause of the hydrophthalmos must remain in considerable obscurity.

In the case I wish to report, the element of overgrowth of the cornea apparently kept pace with the process of dilatation, since centrally the cornea appears to be about three times the thickness of a normal cornea. This appears to be true of all the structures developing from the mesoderm, and whether it is an hypertrophy or an hyperplasia I am unable to state, the eye not having been enucleated for study.

It would appear that we must look to defective embryological development for the underlying and beginning factors. It is not my intention, however, to go into any detailed account of the embryology, but rather, in a theoretical or speculative way, consider the possibilities of imperfect or disproportionate development. In the very early growth there is neither vitreous nor anterior chamber with its aqueous content, the two tissues so distinctly enlarged in hydrophthalmos. The anterior chamber develops from the slit resulting from the growing inward of the mesodermic structures, between the ectoderm and its offshoot, the lens, the anterior portion forming the cornea, the posterior portion the iris and pupillary membrane. According to Fuchs,[1] "The development of the tissue of the vitreous takes place from the cells of the inner layer of the ocular vesicle, i. e., from the part that afterwards becomes the retina, and mainly from its most anterior or ciliary portion. In

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* Read before the Section on Eye, Ear, Nose and Throat Diseases of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 19, 1916.

[1] Fuchs: Third Edition, p. 311.

proportion as the vitreous develops, the lens pushes away from the bottom of the ocular cup and against its anterior wall. The cleft in the optic pedicle, which represents the continuation of the ocular cleft backwards also becomes united later on by the growing together of its walls, and thus shuts off the vessels which lie at its bottom." These vessels, of course, are mesodermic in origin, and upon them depends growth in this very early formative period, and any disproportion in development on the part either of the ectodermic or mesodermic structures might easily prevent the shutting off of these vessels, in consequence of which growth would continue, rather than become arrested at this point, with, of course, resulting anomalous development. In the course of this faulty development ectodermic structures might not become involved in an overgrowth as apparently the usual small lens would indicate.

Just what actually takes place at the beginning, in the ciliary body and its component parts, remains, I believe, in doubt. Reports of an inadequate or even the absence of the canal of Schlemm have been made; so also the condensing of the ligamentum pectinatum during fetal life have been theoretically advanced as the underlying cause of the invariably increased tension, and this increase in tension has also theoretically been advanced as the cause of the subsequent ectasia of the cornea and sclera, as well as the elongation of the zonula of Zinn. Critically examined, these theories will not hold as they do not convincingly prove which occurs first, the increased pressure as a cause of the narrowing and condensing of the ligamentum pectinatum, or the narrowing and condensing causing the increased pressure. That an overstretching occurs in the presence of increased pressure is a certainty as evidenced by the usual thinning of the cornea and sclera. In my patient's eye the cornea is quite thick centrally So also, while the sclera appears quite thin, especially near the limbus, I could not say that proportionate thinning occurred in the choroid and retina. These structures appear quite normal, except the anterior portions, where several choroidal vessels are clearly seen. Posterior staphyloma is not present. From the limited choroidal and retinal defect I assume that they shared in the fetal overgrowth. There is at present no evidence of detachment. Descemet's membrane has not been ruptured.

Case. Helen D., aged 5½ years. Vision equaled O. D., 6/6; O. S., hand movements at 2 feet. Patient is normal in physical and mental development for age. Parents and grandparents are living and in good health. Father's eyes are normal except slight refractive error. Mother has left divergent squint since childhood, evidently due to neglected ametropia and with consequent amblyopia ex anopsia. Patient was delivered with forceps after rather prolonged and difficult labor, one blade being over root of nose, left eye and left frontal region. This did not produce any abrasion of skin nor any apparent trauma of globe. At birth the left eye appeared a trifle larger than the right, and gradual enlargement has since taken place so that now the cornea measures 18 by 19 mm., with an irresponsive 8 mm. pupil. Centrally the cornea is quite thick, with good curvature, but somewhat thinned toward limbus. Sclera is thin near limbus with moderate bluish appearance. Divergence of about 20 degrees. Ocular movements are limited, especially inward. Patient is unable to close lids due to enlarged globe, rather than lid defect. Conjunctiva is elongated over upper limbus. Scleral and episcleral vessels are full and tortuous. There is no equatorial or posterior staphyloma. Zonula of Zinn is elongated. There is a moderately thinned tremulous iris, without apparent loss of pigment. Media are clear; arteries appear small with normal walls, veins moderately full, not dark, no pulsation; disk oval 6 by 8, long axis 90, dull gray, most at temporal and nasal sides, color somewhat better up and down; narrow scleral ring up and in and down and out, deep (8 or 9 D.) excavation of nearly entire disk, plainly showing lamina at base, optic atrophy well advanced.

TREATMENT

Myotic treatment apparently is not of any value. Various surgical procedures have been carried out without any great amount of success. Iridectomy fails because, with the escape of the large amount of aqueous, rupture of the defective zonula occurs. Sclerotomy does not give adequate drainage. Trephining might be considered in the early stages. Treatment fails because it is directed toward the end results of the defective construction, rather than toward the defective construction itself, and until exact determinations of these defects have been ascertained, progress tending toward a cure will necessarily be at a standstill.

DISCUSSION

Dr. Edward B. Heckel, Pittsburgh: I agree with the reader of the paper that we know practically nothing of the subject. Not having expected to discuss it I have not looked up the literature concerning it. I have seen several cases, however, and so far as the etiology of the condition or disease, whichever you choose to call it, is concerned, I think that it can be summed up by stating that it is due to a developmental defect in the entire outer tunic of the eyeball, which is not able to withstand the intraocular tension. As the result, the tunic stretches and the eye sometimes grows enormously large. The cornea is sometimes much enlarged and the anterior chamber very deep. The entire eyeball often becomes greatly enlarged.

As to the amount of tension within the eyeball, I think that frequently it is not very great. I saw one case in a little girl, in whom the enlargement had gone on to such an extent that ordinary lines of treatment accomplished practically nothing, so that the eyeball had to be enucleated. I expected to find the classical signs, symptoms or conditions put down as congenital hydrophthalmos or congenital glaucoma; but there were practically none. That demonstrates the fact that the intra-ocular tension, if it was elevated at all, was not enough elevated to shove out the tunics of the eye. In another case in which enucleation was done, there was excavation of the optic disk of about 3 mm. That is a great deal, when it comes to an excavation of the optic disk. There was so much dilatation that the scleral ring was contracted, the rest of the disk being shoved out until it was fully 3 mm. in depth. All lines of treatment have been practically of no avail in the treatment of this condition; so it may be considered a developmental defect.

Dr. Wendell Reber, Philadelphia: I quite agree that in this condition we are probably dealing with a defect of development, which may be due to some intra-uterine condition. The elasticity of the coats of the eye in a child is remarkable, and this accounts for the distention of the globe seen in hydrophthalmos. Later in life, the globe becomes more rigid, so that whenever undue tension occurs in an adult it naturally forces the optic disk backward, producing a cup. In infantile glaucoma the whole eyeball is involved. The only structure not subject to the condition seems to be the crystalline lens; and the stretching is sometimes so great that rupture of the crystalline lens ligament, or zonula of Zinn, is not infrequent in connection with these cases. Of the patients that I have had under personal observation, a number had dislocation of the lens due to this rupture. The treatment is entirely surgical. Myotics are valueless. Iridectomy is a hazardous procedure because the vitreous may be lost. Sclerotomy offers practically nothing more. This condition seems to be the one in which the trephine offers most, for protection can be given by means of a flap and there is much less likelihood of escape of the vitreous, and the certainty of filtration is the thing that is needed in these cases. Dr. Zentmayer's questionnaire sent to one hundred ophthalmic surgeons showed that there were only 20 per cent. of cases of loss of vitreous following this procedure, while there were 60 per cent. of losses with iridectomy and sclerotomy. Of the remaining 80 per cent., 40 per cent. showed some improvement after the use of the trephine, and 40 per cent. were practically cured. It seems to be *the* indication in these cases.

INTERN THIS ENEMY

If we enter the great war, we should learn by the experience of others. The nations of Europe have found that drink and efficiency in war are not compatible terms. So they have abolished—or gently restricted—the drink.

We should follow their example without a moment's delay. There is a simple way to do it. Let Congress raise the tariff and internal revenue tax rates on liquor to a prohibitive height.

If we are to fight, we must omit no word or deed to make our fighting effective. Drink does nothing to make men good fighters, or good workers, or good citizens.

The liquor traffic ought to be interned for the duration of the war.

And afterward? Wait and see.—*The Independent.*

DIAGNOSIS AND TREATMENT OF CHRONIC INTESTINAL INDIGESTION IN CHILDREN *

ROBERT K. REWALT, M.D.
WILLIAMSPORT

Chronic intestinal indigestion in more or less severe form is the most common ailment in children between the ages of 1 and 6 years. All classes, rich and poor, are affected. Yet very little attention seems to have been paid to it. The literature on this subject is very scanty, although physicians having children under their care meet this condition more than any other. Failure to diagnose and institute proper treatment is the cause of many children being delicate and susceptible to intercurrent diseases.

The diagnosis of intestinal indigestion of the chronic type is based on the symptomatology, which is rather comprehensive and sometimes complex. A history of the case will usually bring out the fact that the child has been improperly fed for some time. If the morning and evening temperature be taken, fever will be found present. This is of an irregular type, ranging from 99.5 to 102 F.

The child is listless, cross and irritable and extremely hard to amuse. The appetite is capricious; although generally poor, he may take any food that is offered. The tongue may or may not be coated. Sometimes the tongue remains coated long after the child is apparently well.

Abdominal pain may be present, the child often complaining of his stomach hurting immediately after taking food. Tympanites and flatulence are almost always present.

Most of these patients are constipated, although some have diarrhea with four to six movements daily. Very occasionally the bowel action is normal. The stools are very offensive as to odor. When constipation is present the stools are well formed, often hard, clay colored and apparently well digested. If diarrhea of a chronic type exists, the stools are thin, greenish or brown in color, sometimes frothy and always contain particles of undigested food. Many patients will have more or less mucus in the stools, which results from irritation in the bowel on account of hard fecal matter or functional derangement.

The physical condition of these patients is rather typical. They are thin and pale with circles under their eyes. They may or may not be undersized, but all have large protuberant abdomens. A blood count will generally reveal a secondary anemia of moderate severity. Examination of urine shows an excess of indican and usually a condition of hyperacidity.

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* Read before the Section on Medicine of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 21, 1916.

Many of these patients will have been treated with quinin and vermifuge, as this condition is often mistaken for malaria and intestinal worms.

The nervous symptoms in these cases are remarkable in their extent and very apt to be misleading. In addition to the general nervous irritability there may be convulsions, opisthotonus, tetany, day and night terrors, disturbance of speech, fainting attacks, exaggerated reflexes, attacks of dulness and stupor with irregular respirations and pulses often resembling tuberculous meningitis and acidosis. In fact, to my mind there is a distinct relationship between chronic intestinal indigestion and acidosis. In one of my cases, a boy of 2 years, there were six convulsions in twenty-four hours. In another case, a girl of 4 years, there were distinct night terrors (pavor nocturnus); she imagined her teddy bear was trying to choke her. Urticaria and the chronic forms of eczema are frequently seen in this condition.

The treatment of chronic intestinal indigestion in children will give splendid results, provided the physician has the earnest support and cooperation of the mother or nurse, and provided that the physician himself will take a proper interest in having his orders strictly obeyed. Any deviation from the strict regimen laid down will undo in twenty-four hours the work of a month.

The general management in these cases is important. Personally, I believe that the child should be kept in bed until his temperature is normal and remains so for three or four days. Then he might be allowed up, gradually increasing the time of his being up as improvement takes place. Whether the child is confined to bed or not, he should be obliged to take a nap of at least two hours daily. Regular exercise, such as walking in the open air, should be insisted on, being careful not to overtax the strength of the child. Proper clothing for the different seasons should be advised. Cool sleeping rooms, an oil massage at night and a cool sponge bath in the morning are valuable measures.

As improper food is the cause of intestinal indigestion, the most important factor in treatment is the placing of the child on a strict diet and keeping him there for a long period of time. The usual history of these cases will be that the children were allowed to eat solid food which they were unable to digest. In the majority of cases, the carbohydrates are at fault, in that they were given in excessive quantities. The most important thing to do is to place the child on a diet consisting of milk and scraped beef or beef juice. Four feedings a day may be given. Occasionally the milk must be skimmed for children who show a fat intolerance, or in very bad cases partial peptonization must be done for several weeks. If improvement takes place after two or three weeks, the juice of an orange should be given once daily and a feeding of malted milk given in place of cow's milk. Barley or oatmeal gruel is then added to the milk. If the child shows an ability to digest this form of starch, cooked cereals may be added later. Next toast or stale bread may be given and, after two months, spinach, asparagus tips, stewed celery, boiled rice and plain macaroni are added. The animal broths, a soft boiled egg and the white meat of chicken are given, and together with the above-mentioned foods, should constitute the child's diet for six months. After this time, other foods may be cautiously allowed.

During the treatment the stools should be closely watched for undigested food particles. Not infrequently one is obliged to go back and start over again.

Occasionally a case will be seen where the patient has been taking cow's milk to the exclusion of other foods, or in too great a quantity. In a case of this type the management is, of necessity, different. All cow's milk should be discontinued, and the patient should be placed on a diet consisting of scraped beef or lamb, cooked cereals, one soft boiled egg daily, orange juice or apple sauce, and some vegetables, preferably spinach, asparagus, cauliflower and stewed celery. A little malted milk may be given. Resumption of taking cow's milk should be very gradual and in small quantities.

After all symptoms have disappeared, the normal diet should be resumed slowly. Hence the necessity for keeping these patients under observation for a long period of time.

In cases where there is much mucus, intestinal irrigation is of distinct service. The irrigating fluid should be warm normal salt solution and may be used once or twice a day. Continued irrigation may prove harmful, as it sometimes causes the production of mucus from irritation.

Of the intestinal antiseptics, salol and the *Bacillus bulgaricus* have been of great value in certain cases. A word of caution in regard to the administration of the *Bacillus bulgaricus*. This remedy should not be used in cases where there is any tendency toward acidosis. It may bring on a distinct attack.

For the constipation which usually exists, nothing is better than the use of calomel and phenolphthalein, gr. 1/10 of each, every one-half hour, for ten doses. This may be repeated every week for as long a period as is necessary. As a light laxative for more or less continued use, aromatic cascara sagrada and the combination of rhubarb and soda have proved very efficacious.

The tincture of nux vomica is by far the best general tonic and may be used routinely as the physician may direct. Ovoferrin or the bitter wine of iron in connection with Fowler's solution is of value, where the secondary anemia persists.

Close observation on the part of the physician, having under his care children suffering from this condition, will be rewarded by excellent results.

25 West Third Street.

DISCUSSION

Dr. Harry Lowenburg, Philadelphia: The condition occurring in children, designated as chronic intestinal indigestion, is so obscure and so commonly associated with other phenomena, some of them so manifestly remote as to their association with or direct dependence on intestinal derangements, that one may be permitted to indulge in the supposition as to whether it really constitutes a distinct disease entity or whether it is not a part of a general status. It is not always possible to determine whether the digestive features are primary or whether they represent the secondary effects of a primal underlying etiologic factor which is responsible for the entire ensemble of symptoms so well described by the essayist. This factor may be assumed to be a biochemical toxin, which interfering with the nervous mechanism of the gut, does not permit of the proper digestion and assimilation of the food on account of the derangement of the secretory, absorptive and muscular functions thereby induced. It is true that this toxin may be secondary to a disturbance of the digestive function as the result of prolonged injudicious feeding or of psychic shocks incident to a vicious environment, as I have seen. However, the non-digestion and subsequent fermentation or putrefaction depend on the character of the food itself and the intestinal bacterial flora, and not on an inherent defect in the gut. This defect is secondary to the effects of the toxin or to the primary food injury or to nervous influences incident to a vicious environment or to psychic phenomena. The substitution of a normal diet and of a normal environment is not immediately, and sometimes not remotely, followed by beneficent results. The disturbed function continues after the dietetic and other causes are removed and the production of toxin continues with all of the ill effects. The digestive disturbance resulting from the primary food injury or from other cause may be responsible for further toxin formation and digestive derangement. Thus is established a vicious circle whose effect may be further to intensify the cause. Therefore, the term chronic intestinal indigestion is vague in meaning and in pathology. It seems to me that, though obscure, the term "toxic diathesis" would better describe these cases than the term chronic intestinal indigestion, the indigestion being regarded simply as a part of the whole. A correct interpretation of this state or diathesis must be left to the laboratory worker, especially the physiologic chemist working in conjunction with the clinician.

Granting for the moment, the term chronic intestinal indigestion to be sufficient, I must demur from including in this category, as the essayist does, cases exhibiting irregular temperature, however slight, which extend over a more or less long period of time. More than likely, in such instances, chronically diseased caseous tonsils, enlarged cervical or bronchial glands, tubercular or otherwise, or carious teeth, a filthy mouth, pyorrhea alveolaris, or some hidden focus of suppuration will be found to be the offending factor and whatever digestive symptoms which may be present, will be found to be secondary. These cases often exhibit a mild leukocytosis and a secondary anemia. Therefore great caution is necessary in diagnosing any more or less permanent presence of temperature as due to chronic intestinal indigestion so-called.

I would urge a systematic examination of the urine and of the stools in all of these cases. Much may be learned therefrom in making up a suitable dietary and therapeutic regimen. Those foods for which an intolerance seems to exist, and which may be responsible for the primary trauma, may be thus eliminated and cautiously readded as the tone of the general system and of the gut are reestablished. The selection of the diet is therefore a matter to be considered for each individual, although in my own experience, differing from the author's, these cases, taken generally, do better when milk is eliminated for a month or so. This is probably due to the fact, as the author states, that these children have received an excess of milk. This is the result, usually, of parental overanxiety, the desire having been to fatten and to strengthen the child. Assimilation is what counts in nutrition and not the amount ingested. Small amounts of milk, 2 to 3 ounces slowly imbibed every 3 to 4 hours, accomplish more good and decidedly less harm than large amounts at infrequent intervals.

Fruit juices and alkalies are good as general measures to overcome systemic acidity which is commonly present. The urine is often highly acid and commonly contains indican and acetone and its derivatives. On the other hand, extreme systemic acidity is indicated by an alkaline urine, precipitating phosphates at body temperature. Urinary findings of this type surely speak in favor of a general toxemia.

It is my belief that milk and scraped beef are incompatible. I object to the term peptonization, as it is confusing. I believe the term pancreatization should be universally adopted as being more comprehensive and self-explanatory.

My opinion as to the harmful effects of continuous irrigation is in accord with the author's view. I am constrained, however, to differ from the author's method of employing calomel, as conducive to intestinal relaxation. What is needed is to regain intestinal tone; therefore, I believe the day of excessive purgation is passing. Evacuation of the bowels may be secured by general measures, diet, abdominal massage, mineral oil and the local use of suppositories, glycerin and water enemas, and the administration of tonic laxatives, as cascara, senna and prune juice combined in equal quantities with a home-made decoction of senna leaves.

I am in accord with the other general and medicinal measures proposed by the author, but I employ iron hypodermically in combination with sodium cacodylate and sodium glycerophosphate and would urge the administration of a dram of bicarbonate of soda scattered throughout the food daily for a long period of time. Its action as a systemic antacid is beneficent.

SELECTION

BEWARE OF THE DANGEROUS HOUSE FLY

As a practical measure of preparedness the disease-carrying house fly must be eliminated. American military records show that it causes more deaths than the enemy.

KILL FLIES AND SAVE LIVES

Kill at once every fly you can find and burn his body.

Observers say that there are many reasons to believe there will be more flies this season than for a number of years.

The killing of just one fly NOW means there will be billions and trillions less next summer.

Clean up your own premises; see and insist that your neighbors do likewise.

Especially clean "out-of-the-way places," and every nook and cranny.

Flies will not go where there is nothing to eat, and their principal diet is too filthy to mention.

THE FLY IS THE TIE THAT BINDS THE UNHEALTHY TO THE HEALTHY!

The fly has no equal as a germ "carrier"; as many as five hundred million germs have been found in and on the body of a single fly.

It is definitely known that the fly is the "carrier" of the germs of typhoid fever; it is widely believed that it is also the "carrier" of other diseases, including possibly infantile paralysis.

The very presence of a fly is a signal and notification that a housekeeper is uncleanly and inefficient.

Do not wait until the insects begin to pester; anticipate the annoyance.

April, May and June are the best months to conduct an anti-fly campaign.

The farming and suburban districts provide ideal breeding places, and the new born flies do not remain at their birth place but migrate, using railroads and other means of transportation, to towns and cities.

Kill flies and save lives!

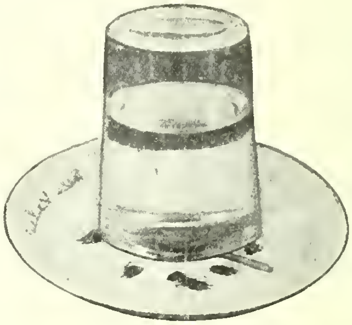
RECIPES FOR KILLING FLIES

The United States government makes the following suggestion for the destruction of house flies: Formaldehyd and sodium salicylate are the two best fly poisons. Both are superior to arsenic. They have their advantages for household use. They are not a poison to children; they are convenient to handle, their dilutions are simple and they attract the flies.

PREPARATION OF SOLUTIONS

A formaldehyd solution of approximately the correct strength may be made by adding 3 teaspoonfuls of the concentrated formaldehyd solution, commercially known as formalin, to a pint of water. Similarly, the proper concentration of sodium salicylate may be obtained by dissolving 3 teaspoonfuls of the pure chemical (a powder) to a pint of water.

A container such as shown above has been found convenient for automatically keeping the solution always available for flies to drink. An ordinary, thin-walled drinking glass is filled or partially filled with the solution. A saucer, or small plate, in which is placed a piece of *white* blotting paper cut the size of the dish, it put bottom up over the glass. The whole is then quickly inverted, a match placed under the edge of the glass, and the container is ready for use. As the solution dries out of the saucer the liquid seal at the edge of the glass is broken and more liquid flows into the lower receptacle. Thus the paper is always kept moist.



Containers for solutions.

OTHER SIMPLE PREVENTIVES

Any odor pleasing to man is offensive to the fly and vice versa, and will drive them away.

Take 5 cents' worth of oil of lavender, mix it with the same quantity of water, put it in a common glass atomizer and spray it around the rooms where flies are. In the dining room spray it lavishly even on the table linen. The odor is very disagreeable to flies but refreshing to most people.

Geranium, mignonette, heliotrope and white clover are offensive to flies. They especially dislike the odor of honeysuckle and hop blossoms.

According to a French scientists flies have intense hatred for the color blue. Rooms decorated in blue will help to keep out the flies.

Mix together one tablespoonful of cream, one of ground black pepper and one of brown sugar. This mixture is poisonous to flies. Put in a saucer, darken the room except one window and in that set the saucer.

To clear the house of flies, burn pyrethrum powder. This stupefies the flies, but they must be swept up and burned.

RECIPES FOR STABLES, BARNS AND OUT-OF-DOORS

Borax is especially valuable around farms and out of doors. One pound of borax to twelve bushels of manure will be found desirable as a poison without injuring its manurial qualities or farm stock. Scatter the borax over the manure and sprinkle with water.

Lye, chlorid of lime, or copperas (sulphate of iron) dissolved in water, crude carbolic acid, or any kind of disinfectant may be used in vaults.—The Merchants' Association of New York.

THE PENNSYLVANIA MEDICAL JOURNAL

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ATHENS, PA., MAY, 1917

YOUR FIRST PATRIOTIC DUTY BUY A LIBERTY BOND

VACATION TIME IS APPROACHING

One of Nature's laws is change. The demand is innate in every normal human. It may be stifled by exigencies; it may be thwarted by purpose; it may even be defeated by desire, but it will sooner or later assert itself and at no time more strenuously than when Nature herself opens the doors of spring and summer and beckons all living things to be up and away.

Relaxation after the winter of strain is the cry of the tired and vexed mind and body. To none is the possibility of a change more grateful than to the physician. To the dwellers in the cities, the country and mountains hold the charm; to the rural members, the seashore or other marts of pleasure prove attractive. Plautus said, "Where it is well with me, there is my country," and the thought could well apply to vacation. Is the desire "back to nature" or is it for enlargement of the vision by travel or adventure in unknown wilds or crowded thorofares? So greatly has travel been revolutionized since the advent of the automobiles (and Fords) and so much has been brought within the enjoyment of all, that personal preference becomes the only guide in the selection of where and when one will go.

One consideration, however, projects itself strongly before us at this time and bids us in bold and stirring tones to consider first our country's needs. Each physician must realize his debt to humanity, whether in his community or in some governmental capacity, and dare not shirk doing his share toward the upholding of our honor as a nation. This year at least should be given over to the consideration of the nation's needs and a little forethought and planning will enable us all to arrange our search after health and recuperation so that we shall add a degree of preparedness to our equipment of medical knowledge—preparedness for some of the demands of duty which are daily threatening us and for which 99 per cent. of us are so entirely unequipped. Let us all pull together and so plan our vacation as to help save and place far above all suspicion of danger from any foe our country of which our own beloved Van Dyke sang:

> "Oh, it's home again and home again—America for me.
> I want a ship that's westward bound, to plow the rolling sea
> To the blessed land of *Room Enough* beyond the ocean bars,
> Where the air is full of sunlight and the flag is full of stars."

Make your vacation correspond with your national duty. Plan all with the view of increasing both mental and physical efficiency. Join the Officers' Reserve Corps of the Army or Navy and spend two weeks of your time in a training camp which, aside from the technical training afforded, is in reality a two weeks' camping-out trip and furnishes health as few other forms of outing can do. The expenses are slight, the surroundings are pleasant and the returns are a thousand-fold.

J. T. R.

EVERY ONE TO DO HIS BIT

Every tenth doctor in Pennsylvania under the age of 45 is needed now in the medical service of our country, and England, in listing her needs from America, places doctors first. Older men can be used to advantage in base hospitals and in the Medical Reserve Corps with the age limit of 55. Later, if the war continues, more medical men will be required. There will be found in this issue two application blanks which are identical with the official blanks in use by the government, one for appointment in the

Medical Corps of the Army, and one for appointment in the Medical Reserve Corps. Men for the Medical Corps, first blank, permanent service, must be under 32 years of age, and must have had one year in a hospital. Either blank should be filled out carefully and mailed to "The Surgeon-General, U. S. Army, Washington, D. C."

Only a small proportion of our physicians are so situated that they can serve our country in either army or navy, but all of us can "do our bit" in one way or another. Surely doctors do more than their share of gratuitous work, and yet most of us will be willing to attend the families of soldiers without being very exacting in our charges, and all of us will be glad to attend without any charge the families of physicians who have entered the service.

It has been suggested that the organized profession undertake a systematic arrangement by which the practice naturally falling to such physicians as have entered the service be taken care of, a portion of the collections being turned over to the families of the physicians, or held for such physicians on their return from service. The patients are also to be returned to their regular physician on his return. Our members are requested to consult the News Items in this issue and see how best each may "do his bit" as a physician and as a patriotic citizen.

ANNUAL LIST OF MEMBERS

There will be found in this issue the annual list of the officers and members of the sixty-three component county societies of the Medical Society of the State of Pennsylvania. The preparation of this list has necessitated much painstaking work and yet doubtlessly errors and omissions will be found, most of them due to the procrastination of certain members in the matter of paying annual dues to the county society. Although the publication of the list has been delayed a month longer than usual, it is necessary to omit the names of about three hundred former members. Some of these are worthy members who for various reasons have neglected to pay their 1917 dues and will later be reinstated; some are elderly members who have retired from practice and some have removed from the state. A careful follow-up system carried on for a number of years shows that the majority of those who drop out from year to year are dissipated and undesirable men.

HONOR ROLL FOR MAY

The following component county societies have forwarded the 1917 *per capita* assessment for at least as many members as they had in 1916. The figures indicate the percentage of members paid for 1917 as compared with the number paid for 1916. In one or two instances where all of the living resident members have paid for 1917 there may be a seeming lack of credit. The Honor Roll for June will contain the names of the societies that have paid for more members for 1917 than they had in 1916.

	Per Cent.
York County	110
Schuylkill County	110
Huntingdon County	109
Delaware County	107
Greene County	105
Montour County	105
Northumberland County	105
Potter County	105
Lehigh County	104
Luzerne County	104
Montgomery County	104
Dauphin County	103
Tioga County	103
Allegheny County	102
Philadelphia County	101
Adams County	100
Bedford County	100
Bucks County	100
Carbon County	100
Center County	100
Clearfield County	100
Clinton County	100
Crawford County	100
Columbia County	100
Erie County	100
Juniata County	100
Mifflin County	100
Monroe County	100
Perry County	100
Somerset County	100
Sullivan County	100
Susquehanna County	100
Union County	100
Wyoming County	100

THE NEW YORK SESSION, A. M. A.

The Sixty-Eighth Annual Session of the American Medical Association will be held in New York City, June 4-8, and will probably be one of the largest and most interesting sessions ever held. Pennsylvania should be well represented. The Trunk Line Association, which comprises most of the railroads in Pennsylvania, will sell tickets at 2 cents per mile in each direction on the certificate plan. The certificate must be asked for when ticket is purchased, and will be validated in New York without any charge. It will be well for each physician going to consult his local ticket agent a few days before starting. Many from this state will auto to the city. See outline map of main highways and roads on an advertising page in this issue. The *Journal of the American Medical Association* for May 8 gives lists of hotels, programs and much interesting data.

MEMBERS RECENTLY DECEASED

Allegheny County: John O. Reed (Jefferson Med. Coll., '93) in Crafton, April 5, from pneumonia, aged 51; Milton D. Schumaker (West Penn Med. Coll., Pittsburgh, '88) of Tarentum, in Albuquerque, N. M., April 11, aged 50.

Carbon County: Louis W. Moyer (Univ. of Maryland, Baltimore, '87) in East Mauch Chunk, April 12, as the result of a paralytic stroke, aged 52.

Clarion County: Ezra S. Meals (Cincinnati Coll. of Med. and Surgery, '74) in Harrisburg, April 18, aged 65.

Lehigh County: Robert D. Morgan (Maryland Med. Coll., Baltimore, '10) in Slatington, April 11, from a fractured skull the result of a fall, aged 32.

McKean County: Dunham E. Ash (Ohio Med. Univ., Columbus, '87) in Bradford, April 20, aged 65; William P. Burdick (Univ. of Vermont, Coll. of Med., Burlington, '85) in Kane, April 16, from toxic poisoning, aged 57.

Philadelphia County: James E. Clawson (Univ. of Maryland, Baltimore, '55) in Philadelphia April 13, aged 88; Julia P. Harton (Women's Med. Coll., Philadelphia, '04) in Philadelphia March 15, from tuberculous meningitis, aged 35; John K. Mitchell (Univ. of Pennsylvania, '83) in Philadelphia April 10, from heart disease, aged 57; Joseph R. Osman (Medico-Chirurgical Coll., Philadelphia, '84) in Philadelphia, March 17, aged 73.

Tioga County: Fred G. Wood (Jefferson Med. Coll., '95) in Mansfield, April 6, from pleuropneumonia, aged 50.

Washington County: William V. Riddle, in Burgettstown, March 25, aged 77.

STATE NEWS ITEMS

Resolution on Alcohol Adopted.—At a meeting of the Philadelphia County Medical Society held April 18, 1917, the following resolution was adopted: "We, the members of the Philadelphia County Medical Society of the State of Pennsylvania, do hereby petition and urge the members of Congress to pass a bill prohibiting the manufacture and sale of alcoholic beverages during the time the United States is at war, in order that grains may be used to produce life-giving products and the efficiency of the nation may be increased."

The Roentgen Ray Society of Central Pennsylvania will hold its spring meeting at Johnstown, May 26. A clinic on "The Surgical Treatment of Gastric Ulcer and Carcinoma of the Stomach" will be held in one of the hospitals in the morning by Dr. George P. Müller of Philadelphia. At the afternoon session at Fort Stanwix Hotel at 2:15 a symposium will be given by Dr. John A. Lichty, Pittsburgh, on "The Diagnosis and Treatment of Peptic Ulcer," Dr. Russell H. Boggs, Pittsburgh, on "The Roentgen Diagnosis of Carcinoma of the Stomach," and Dr. G. W. Grier, Pittsburgh, on "Nonmalignant Lesions of the Stomach from a Roentgen Standpoint."

Clearfield County Medical Society Resolutions.

To the President, Executive Mansion,
Washington, D. C.

Mr. President:—At a recent meeting of the Clearfield County Medical Society the following resolutions were unanimously adopted and are herewith submitted to your Excellency:

Whereas, The flag of our native land has been insulted, our citizens wantonly murdered and our commerce seriously threatened by a foreign foe, and

Whereas, The President and Congress have been forced by these acts to declare that a State of War exists between the United States of America and the ruling forces of Germany, be it

Resolved, That the Clearfield County Medical Society, a constituent of the Medical Society of the State of Pennsylvania, does hereby pledge its loyal support to the President in this time of grave moment, when the forces of organized despotism, piracy, and murder are striking at the foundations of liberty.

Respectfully submitted,
(Signed) W. Scott Piper, Pres.
J. M. Quigley, Sec.

Dr. Hirsh's Services Appreciated.—The members of the Philadelphia County Medical Society having learned with regret of the resignation of Dr. A. B. Hirsh as editor of *The Weekly Roster* of the Medical Organizations of Philadelphia, desire to place on record their high estimate of the public spirit and services of Dr. Hirsh: First, in originating the whole plan of the County Society Paper in America, thus supplying a direct medium for promptly and favorably influencing the local profession in any given center. Second, by founding and for almost thirteen years conducting to the satisfaction of the profession *The Weekly Roster,* such a large factor in the wide expansion during the past fifteen years, of this society; spreading the branch system of medical meetings in all outlying sections of the city, thus carrying postgraduate instruction directly to every doctor; stimulating improvement in the quality of the scientific programs of meetings in general; concentrating medical sentiment and civic spirit; furthering the material status of the practitioner; telling the world each week of the manifold scientific activities of this medical research and teaching center. In recognition of his lifelong devotion to these high ideals, the thanks of the society are herewith tendered to Dr. Hirsh—these sentiments to appear in the next number in April of *The Weekly Roster* and a copy to be sent to the Pennsylvania Medical Journal and to *The Journal of the American Medical Association.*

Philadelphia Dentists Plan for War Service.—The Preparedness League of American Dentists, actively supported by the Academy of Stomatology of Philadelphia, has arranged the following program for active service in the war: (1) To care for the teeth of applicants for enlistment who cannot pay for service; (2) to perfect themselves in the study of war dental and oral surgery; (3) to endeavor to keep in touch with Red Cross work and base hospital service at home; (4) to exert influence with the War Department to establish dental units in the army and navy, trained and equipped for the treatment of fractures and all mechanical restorations of the face; that these officers may also have better conditions of service and be allowed to obtain higher rank than at present; (6) that comprehensive courses in war oral surgery be inaugurated in the dental colleges so that there may be a constant supply of young graduates trained for active service. The committee in charge of this work is now in touch with the medical committee of the Council of National Defense and is a part of that body. A course has been outlined to train dentists for war work that has been approved by the surgeons general of both the army and navy and will soon be started. The committee will endeavor to arrange the work so that it will be no great handicap for a practitioner to serve. The men who have established practices and have family ties will be assigned to the treatment of recruits and home hospital work. The young men will find active service a very valuable experience. The Philadelphia committee will welcome cooperation with medical organizations of this center in this work. Dr. Dudley Guilford, 124 South Eighteenth Street, Philadelphia, will give further information regarding this work.

Community Health in Pittsburgh.—During the weeks of March 12 and March 19, 1917, the Metropolitan Life Insurance Company, with the cooperation of Dr. J. F. Edwards, director of public health, conducted a health census in the city of Pittsburgh and in a few immediately adjacent towns. The inquiry was made through the company's agency staff of 170 men. The health status of a little more than 127,000 persons was ascertained and 2,039 sick persons were enumerated. This number of persons enumerated is 22 per cent. of the total population of the city of Pittsburgh. It is especially important to know that this representative portion of the general population of Pittsburgh included a large number of men, women and children of the wage earning classes. The sickness rate was sixteen per thousand or one sick person in every sixty-three. This figure is on the whole more favorable than that discovered in any of the other sickness censuses undertaken by the Metropolitan Life Insurance Company. Final conclusions cannot be drawn from the findings, however, until a further study of the figures is submitted in a final report. This health census has made it possible to discover the sickness rates of the more important industrial groups in the city of Pittsburgh. Among employees in the iron and steel mills the sickness rate was twenty per thousand, and among glass factory workers it was nineteen per thousand. These figures are but slightly higher than the sickness rates for the general group of the population enumerated and do not indicate any distinctly unfavorable health conditions. White persons showed a lower sickness rate, sixteen per thousand, than did colored persons, eighteen per thousand. The principal diseases enumerated in Pittsburgh were accidents and injuries which constituted 9.7 per cent. of the cases; rheumatism with 8.3 per cent. of the cases; influenza with 7.6 per cent.; pneumonia with 5.7 per cent.; colds, coryza and rhinitis, 4.3 per cent.; tuberculosis of the lungs, 4.1 per cent., and diseases of the stomach, 4 per cent. In general, the findings for diseases and conditions among persons enumerated in the city of Greater Pittsburgh are very much the same as the average figures for the entire state of Pennsylvania and indicate no unusual circumstances. The Metropolitan Life Insurance Company during the same two weeks that it conducted its inquiry in Pittsburgh also took a health census of other large cities of western and middle Pennsylvania. The company proposes to publish shortly a complete discussion of its findings on sickness among its policy holders in the entire state of Pennsylvania, at which time the facts for the several cities in the state will be compared and the results published for the information of departments of health, the medical profession and the general public.

SICK PERSONS PER 1,000 EXPOSED—PRINCIPAL DISTRICTS OF WESTERN AND MIDDLE PENNSYLVANIA, MARCH 12 TO 24, 1917

Area	Rate per 1,000 Exposed		
	Total	White	Colored
Districts* surveyed in—			
Pennsylvania (total)	18	17	21
Pittsburgh	16	16	18
Braddock	16	16	23
McKeesport	21	20	24
Pottsville	16	16	**
Uniontown	23	22	28
Connellsville	20	19	23
Johnstown	19	18	39
Altoona	21	22	**
Scranton	21	21	**
Shamokin	21	21	**
Wilkes-Barre	18	18	**
New Kensington	17	16	**
Hazleton	17	17	**
Shenandoah	19	19	**

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* These districts include the towns and villages immediately adjoining the city specified.

** Insufficient data.

Taking the group of cities in Pennsylvania as a whole, the chief causes of disability registered in the survery were accident and injuries, which accounted for 11 per cent. of the total; rheumatism was next in importance with 8 per cent. of the total and influenza with 7 per cent. of the total cases of sickness registered. Pneumonia was registered in 6 per cent. and tuberculosis in 3 per cent. of the cases. Diseases of the stomach, asthma, diseases of the heart, "colds" and bronchitis each accounted also for about 3 per cent. of the cases of sickness. On the basis of the sickness rate shown about seven days per inhabitant of working age are lost each year on account of sickness.

GENERAL NEWS ITEMS

The Bay City (Mich.) Medical Society has offered to give its services free to families of all Bay City men who enlist in the army or National Guard.

Talbot County (Md.) Medical Society, at its meeting in Easton, April 6, adopted resolutions tendering professional services gratuitously to the members of families of those who are called to the colors.

The Barton County (Kan.) Medical Association, at a meeting in Hoisington, April 9, agreed to endeavor to take care of and to keep intact the practice of any member of the society who may enter the medical service.

The Richmond County Medical Society, April 13, adopted resolutions providing that the practice of physicians who enter the military service will be cared for by those who remain at home, that faithful records will be kept, and that no charges will be made for such services.

The Atlantic County (N. J.) Medical Society, at its meeting, March 30, passed a resolution to take care of the practices of physicians who should go to the front and to turn over all fees collected to him or his family and to return the practice to the officers on their return from war service.

The Indianapolis Medical Society, at its meeting March 27, adopted a resolution without dissentient voice which provides that the practice of any physician who enters the Medical Reserve Corps of the army and navy shall be preserved intact during the time he is in the service of his country.

The American Proctologic Society will hold its nineteenth annual meeting in New York City, June 4-5, 1917. The profession is cordially invited to attend the meetings. "The Place of the Proctologist in a Diagnostic Group" is the subject of the President's Address by Dr. Alfred J. Zobel, San Francisco.

At the Meeting of the Wayne County Medical Society held in Detroit, April 9, Major E. P. Biddle, a veteran of the Spanish-American War, stated that it was the duty of the young men to give up their practices and go to war, and of the older men to take care of the practices of the young men while they are away.

Practice to Be Conserved.—Plans have been made whereby the practice of physicians of Spokane who enter the military service will be conserved under the auspices of the Spokane County (Wash.) Medical Society. It is proposed that physicians in the military service receive compensation equal to their former earnings.

Orthopedic Surgeons Aid in England.—Twenty orthopedic surgeons are being secured for service in England under Col. Robert Jones. This expedition will be under the direction of the Military Relief Department of the American National Red Cross. Col. Robert Jones is perhaps the best known orthopedic surgeon in England.

Council on Pharmacy and Chemistry.—During April the following articles have been accepted for inclusion in New and Nonofficial Remedies: Paresine, Abbott Laboratories; sofos, General Chemical Works; siomine, Howard-Holt Company; aspirin, L. and F., Lehn and Fink; acetylsalicylic acid, Squibb, E. R. Squibb and Sons.

The Woman's Medical Association of New York City is planning a banquet to be held at the Hotel McAlpin, Wednesday evening, June 6, 1917, for the women physicians who will be in New York City to attend meetings of the American Medical Association. Tickets, $3, may be obtained from Dr. Mathilda K. Wallin, 616 Madison Ave., New York City.

The New York City Committee of American Physicians, at its meeting in New York, April 13, decided to form an auxiliary in each of the five boroughs of New York, to cooperate with the adjutant-general of the state, in ascertaining the medical and surgical resources, and to sanction any financial and personal agreements entered into by physicians to protect the practice of those who enter the army service. The executive council of the committee elected consists of Dr. Karl A. Connell, Col. William S. Terriberry, M. C.. N. G., N. Y., and Drs. George D. Stewart and Charles H. Peck.

A Thousand American Surgeons for the Front.—After the conference of the medical board of the Council of National Defense with Col. T. H. Goodwin, of the Royal Army Medical Corps, in Washington, D. C., on April 29, it was announced that plans had been made to send one thousand American surgeons to Europe for service with the allied armies. This offer came from the American College of Surgeons. The deans of forty-six medical schools met in conference with the general medical board and agreed to continue instruction without shortening the courses so as to furnish new graduates. Both the schools and the hospitals, however, will cut down in the number of men on the staff as much as possible so as to set them free for service in the army.

The Racine (Wis.) Physicians Association, at its meeting April 17, adopted a resolution providing that physicians who remain at home in the present war crisis shall share the burden of those who are in the military service and that one third of the receipts of practice among patients of such military surgeons shall be paid to the secretary of the county society and held in trust by him for the physicians or turned over, on his order, to the physician's family.

An Occupational Therapy Number.—*The Modern Hospital* (Chicago and St. Louis) announces that its June issue will be devoted to the subject of Occupational Therapy and Occupations for the Handicapped. The importance of this subjcet has not been sufficiently realized until comparatively recent times. Of late the nations at war have come to recognize the therapeutic and economic necessity of providing suitable occupations for those of their wounded and injured who are able to work. This necessity is just as urgent in the case of the handicapped class in civil life. Another important feature of the June issue of *The Modern Hospital* is to be a paper prepared by Miss Alice F. Bell under the auspices of the department of nursing, Teachers College, Columbia University, on the standardization of records in training schools for nurses.

Military Surgeons' Practice to Be Protected.—At the April meeting of the Marion County Medical Society a resolution was adopted providing that "Every physician who is called to the colors will receive from his colleagues who do his practice at home one third of all the gross collections, to be paid the physician or his family monthly, as long as he holds a commission under that of major, and no longer. When he returns, irrespective of his rank, his practice shall be returned to him intact. Any patient consulting a physician who is not one of that doctor's regular patients, is to be asked to state if one of the physicians in the service of the government is his regular physician, making it clear to the patient why he is asked this question. Every physician entering the government medical service is expected, or should make an effort to procure from his patients signed statements to the effect that they are his patients. These signed statements to be filed with the secretary of the society, and the secretary shall furnish copies of these names to his local colleagues.'

The Tuberculosis Problem.—The fact that the anti-tuberculosis campaign has not brought results as favorable as might have been expected is due to the slogan "Tuberculosis is an infectious disease," which overlooks the fact that the disease is acquired in childhood and its manifestation in the adult is only a lighting-up process. Isolation of all persons with tubercle bacilli in the sputum would be effective prevention, but this cannot be attained. Hence, the only hope lies in childhood prophylaxis. Since tuberculosis infection occurs in early childhood, and perhaps in utero, all attempts at prophylaxis are in reality therapeutic.

BOOKS RECEIVED

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

Proceedings of the Connecticut State Medical Society, 1916. 124th Annual Convention, held at Bridgeport, May 17-18, 1916. Editor, Marvin McR. Scarbrough. Published by the society.

Cancer, Its Cause and Treatment. By L. Duncan Bulkley, A.M., M.D., Senior Physician to the New York Skin and Cancer Hospital, etc. Volume II. New York: Paul Hoeber, 1917. Price, $1.50.

Transactions of the College of Physicians of Philadelphia. Third Series, Volume xxxviii. Philadelphia. The volume contains the papers read before the College from January, 1916, to December, 1916, inclusive.

Cataract, Senile, Traumatic and Congenital. By W. A. Fisher, M.D., Professor of Ophthalmology, Chicago Eye, Ear, Nose and Throat College. Illustrated. Chicago: Chicago Eye, Ear, Nose and Throat College, 1917. Price, $1.50 post-paid.

Diagnosis from Ocular Symptoms. By Matthias Lanckton Foster, M.D., F.A.C.S., Member of the American Ophthalmological Society; Ophthalmic Surgeon to the New Rochelle Hospital; First Lieutenant in the Medical Reserve Corps, U. S. Army. New York: Rebman Company, 141 W. Thirty-Sixth Street. Price, $6.00.

Localisation et Extraction des Projectiles. Par L. Ombrédanne, Chirurgien des Hôpitaux, Professeur agrégé à la Faculté de Paris; et R. Ledoux-Lebard, Chef de Laboratoire de Radiologie des Hôpitaux de Paris. Avec 225 figures dans le texte et 8 planches hors texte. Masson et Cie, Editeurs, Libraires de l'Académie de Médicine, 120, Boulevard Saint-Germain, Paris, 1917.

Emergency Surgery. By John W. Sluss, A.M., M.D., F.A.C.S., Associate Professor of Surgery, Indiana University School of Medicine; ex-Superintendent, Indianapolis City Hospital; Surgeon to the City Hospital. Fourth Edition, revised and enlarged, with 685 illustrations, some of which are printed in colors. Philadelphia: P. Blakiston's Son and Company. Price, $4.00 net.

Textbook of Ophthalmology. By Hofrat Ernst Fuchs, Professor of Ophthalmology in the University of Vienna. Authorized translation from the Twelfth German Edition; completely revised and reset, with numerous additions specially supplied by the author and otherwise much enlarged by Alexander Duane, M.D., Surgeon Emeritus, Knapp Memorial Hospital, New York. 1067 pages, with 462 illustrations. Fifth Edition. Philadelphia and London: J. B. Lippincott Company. Price, $7.00.

Rest, Suggestion and Other Therapeutic Measures in Nervous and Mental Diseases. By Francis X. Dercum, A.M., M.D., Ph.D., Professor of Nervous and Mental Diseases in the Jefferson Medical College, Philadelphia; ex-President of the American Neurological Association, of the Philadelphia Nerological Society and of the Philadelphia Psychiatric Society; Foreign Corresponding Member of the Neurological Society of Paris, Corresponding Member of the Psychiatric and Neurological Society of Vienna, Member of the Royal Medical Society of Budapest, Consulting Neurologist to the Philadelphia Hospital, etc. Second Edition. Philadelphia: P. Blakiston's Son & Company, 1012 Walnut Street. Price, $3.50 net.

The Internal Secretions; Their Physiology and Application to Pathology. By E. Gley, M.D., Member of the Academy of Medicine of Paris; Professor of Physiology in the College of France, etc. Translated from the French and edited by Maurice Fishberg, M.D., Clinical Professor of Medicine, New York University and Bellevue Hospital Medical College; Attending Physician, Montefiore Home and Hospital for Chronic Diseases. Authorized Translation. New York: Paul B. Hoeber, 1917. Price, $2.00.

A Compend of Human Physiology. Especially adapted for use of medical students. By Albert P. Brubaker, A.M., M.D., author of "A Text Book of Physiology"; Professor of Physiology and Medical Jurisprudence in the Jefferson Medical College; Formerly Professor of Physiology in the Pennsylvania College of Dental Surgery; Formerly Lecturer on Anatomy and Physiology in the Drexel Institute of Art, Science and Industry; Fellow of the College of Physicians of Philadelphia. Fourteenth Edition. With 26 Illustrations. Philadelphia: P. Blakiston's Son & Company, 1012 Walnut Street. Price, $1.25 net.

BULLETIN EXCERPTS

BULLETIN, CLEARFIELD

Notes of Interest.—The editorial staff notes with some chagrin the fact that the fellow who lives farthest from church gets there first and the fellow who lives next door to the County Medical Society very frequently gets there just in time to express regrets that he did not hear the papers. The last meeting was scheduled to begin at 1:30 and started at 2:30 and the paper of Dr. Donaldson was held back as long as possible in order that the men might get there in time to hear it and even with all that some men got there in time to hear only the tail end of the discussion and they are mostly Clearfield men too.

REPORTER, LACKAWANNA

What Is the County Medical Society to You?—It is altogether probable that the average medical man underestimates the value to him and to his community of a good, live, active organization of medical men and shares the secret feeling that such institutions are too often used for the purpose of furthering the interests of some few or even certain individuals who, as the saying often is, "have an axe to grind." However well founded this idea may be the facts of the case are not borne out, as for instance in the present national crisis, for it is to the organized medical profession throughout the country that the national government turns with the hope that enough medical men can be enlisted into the service to care for the soldiers and sailors who will defend the nation's colors. The secretary's office is almost daily sought now by medical men of this community who would enter some branch of the nation's medical service and while those who are not members of the local county society are just as acceptable for public service we feel quite sure that if a well kept record of the qualifications of the applicants both in and out of their local medical organizations is available after this great conflict, and we have no doubt it will be, we feel certain that the better standings will be among those who have been active and regular attendants on the meetings of their respective county medical societies. A man or woman who takes active interest in advancing things medical in his or her own community will be an active and efficient worker in the service of his or her country and likewise the charlatan who is ineligible to the ranks of the healing profession but who by hook or crook may gain entrance to government service, will prove the more conclusively that the seeming trivial question listed among those in the application blanks "Are you a member in good standing of your local county medical society?" is worth more than some of the others in the same list.

WEEKLY BULLETIN, ALLEGHENY

Pittsburgh Lodge, Order of Moose, No Longer Gives Free Medical Service.—On March 15 the physicians of Pittsburgh, Royal Order of Moose Lodge No. 46, resigned to take effect April 1st. On March 22 the lodge passed a resolution dispensing with free medical services and increasing the membership benefits. This lodge has 6,000 members, one of the largest of this order in the country. A resolution will be introduced at a convention of the order to be held in Pittsburgh in July, dispensing with free medical services to members.

(Signed) F. C. Blessing.

BULLETIN, LANCASTER

Who Is a Physician?—As a general thing all physicians are doctors but not all doctors are physicians. In the common use of the term physician is meant a person learned in the art of treating diseases by the use of medical, surgical, physical, and all means of forces which may be used to assist nature to overcome the disorder which had taken place and produced the disease. The ideal of the modern physician is prophylaxis. Preventing a disease or deformity means more to him than a cure in this high speeded age of ours. The modern physician goes along in all degrees of eloquence and sounding in tones of a clarion—Prevention. Our state board of health spends thousands of dollars to safeguard the children in our schools against disease and deformity, so that the little folks from whose ranks will come the men of tomorrow will not lose a single day from school. We physicians endorse all this work with a bold O. K.

It is a proven fact in the animal industries that in order to obtain the highest degree of efficiency of a creature, whether it be a race horse or a hen, it must receive care. This care begins with the parent before birth. After birth nothing is left undone that might improve its perfection, and great is the reward for the careful owner. Then if this is true in the lower animal life why should it not also be true in the human family the same as the experiments that have been accepted from laboratories as facts. Granted then that all children in order to reach their highest development in body and mind should have, besides what the state board of health requires, plenty of appropriate food and clothes, and a cheerful home. We know that the reason of a large number of neglected homes is alcoholism on the part of the parents. We say to the father or mother who is addicted to the use of liquors, "You must stop the use of strong drinks. You are killing yourself through its use. Besides, you may transmit a weakness to your children which may lead to crime or insanity. You could make better use of your money in buying food and clothes for your children."

Now comes the question: Is a doctor who endorses the work of our state board of health, and admits to the truths as stated and who tells others to stop the use of alcoholics, and yet uses them himself, entitled to be called a physician any more than a clergyman a minister of the Gospel if he does not do as he preaches? The clergyman who yields to his temptations has very little influence on the morals of his community, no matter how eloquent a speaker he may be. Then how can a doctor who uses the goods that he advises against, expect others to carry out his instructions for better health. Let us, therefore, be men of principle and do as we know that we should do. Then we can expect our weaker brother who is not enlightened in medical affairs to follow our advice.

COUNTY SOCIETY REPORTS

BERKS—APRIL

At the meeting of the Berks County Medical Society, April 10, Dr. M. Howard Fussell of Philadelphia presented the subject of "The Use and Abuse of Vaccines and Serums." Serum is a fluid of the blood of a horse immune to bacteria. Vaccines are living or dead bodies of bacteria used for cure or prophylaxis. There are two sorts of immunity: (1) Active, which is produced by injecting dead bacteria that stimulate the cells of the bodies which manufacture their own antibodies; (2) passive, which is produced by injecting into the body an immune serum which takes with it antibodies. Vaccines and serums should be specific. Vaccines must be made from dead bodies of bacteria which infect the organism. Streptococci have no value against staphylococci. We must first remove the foci of infection and then secure an autogenous vaccine. The value of serums and vaccines are beyond computation.

Diphtheria antitoxin is one of the greatest life savers ever discovered, and the danger is not in giving too much but consists in not giving enough or early enough. The mortality increases in ratio with time at which the antitoxin is given. Give from 3000 to 5000 units, then have culture made. Until recently the mortality in tetanus was 75 per cent., but lately this has been reduced in a series of cases to 27 per cent. The spinal cord should first be tapped, then antitoxin, 10,000 then 5000 units injected into veins. The Flexner antimeningeal serum has been used in meningitis with success. Acute lobar pneumonia is caused by pneumococci of which there are four types. Antistreptococcic serum is not to be depended on in the late stages of scarlet fever or puerperal fever. Vaccination is complicated by tetanus only when it is not properly done. Antityphoid vaccine is of great value. Tuberculin should not be used when there is much rise of temperature. The chief value of vaccines in humans is probably prophylactic.

Discussion was opened by Dr. Israel Cleaver, who says he has found tuberculin beneficial only in selected cases and he thinks many physicians are negligent in not urging people generally to be vaccinated against typhoid. Dr. Schantz spoke of injecting into a patient's thigh his disease product in order to develop the antibodies.

Clara Shetter Keiser, Reporter.

LEBANON—APRIL

The Lebanon County Society met at the courthouse, April 11, at 2:45 p. m., President Brubaker presiding. Dr. J. E. Marshall of Lebanon read a paper on "The Present Status of Vaccine Therapy." He traced the history of vaccine therapy, beginning with Jenner in 1796 when he instituted his theory of smallpox vaccination, up to the present day with the many varied vaccines, which he divided into four classes: autogenous, mixed, stock and sensitized. Dr. Marshall believes that the autogenous vaccines are the best and most enduring, because we get the specific bacterium that is the etiologic factor. The distinction between the second and third classes is not so marked. If one is certain of the causative factor the use of the autogenous vaccines is not entirely essential and stock vaccines may be used with care.

The injection made subcutaneously should be done with the usual surgical precautions. A slight reaction at the site is expected, lasting a few hours, and a general reaction may extend over a somewhat longer period. This general reaction should be closely watched in order to regulate succeeding dosage. Dr. Marshall discussed the negative phase which sometimes appears and warned against this contingency. He advised the use of serobacterins, from which a negative phase scarcely ever results. Vaccines cannot be given safely in all cases, especially those in which the patient is suffering with a general infection, such as tuberculosis, diabetes, nephritis, carcinoma, etc. The speaker then mentioned in detail some of the more common diseases in which the vaccines are used, giving methods and doses, and predicted a bright and useful future for vaccines and therapeutic agents.

George R. Pretz, Reporter.

PHILADELPHIA—FEBRUARY

The Philadelphia County Society met February 14, at 8:30 p. m., President H. D. Jump in the chair. A symposium on Electrotherapeutics of Today was presented.

"A Portable Self-Contained, Ever-Ready Aspirating Apparatus" was given by Dr. Philip Atlee Sheaff. In *The Journal of the American Medical Association* for Sept. 16, 1916, I described "An Apparatus for Office and Hospital Use in Obtaining Gastric Contents." In the same publication for Dec. 2, 1916, Harvey G. Beck of Baltimore reports "An Apparatus Designed for the Use of Partial Vacuum in Diagnosis and Treatment." The device which I describe this evening (see *Journal A. M. M.*, March 3, 1917, p. 710) is portable, self-contained, always ready for use, and lends itself to a number of purposes where a partial vacuum is desirable, and in principle may be spoken of as a "hydrostatic hour-glass." It requires no loading up and is constructed of 1⅜ inch light brass tubing 6 feet long, closed at both ends and divided into two chambers by a diaphragm in the middle. Near each extremity of the tube is a pet cock. One chamber contains water and the other air. In its manipulation the water by gravity descends from the upper chamber into the lower. No water is lost and the device is ready for instant use again by simply turning it upside down. While the apparatus is somewhat long, it can be easily carried, and when not in use occupies very little space. It has no valves to get out of order — the three cocks which it contains needing no more attention than an ordinary gas fixture. The capacity of the apparatus may be increased by enlarging the diameter of the tubing, and the negative pressure augmented by adding to the length of the same.

"What Neurologists Should Know About Electro-Therapeutics" was given by Dr. Charles S. Potts. That electricity in diseases of the nervous system is a valuable therapeutic agent when properly used there can be no doubt; that it is often not properly used in such cases is the excuse for this paper. In its intelligent application the physiological effects must be borne in mind and those of special importance in the treatment of nervous diseases are the mechanical, electrotonic, thermic, counterirritant and psychic. The utilization of the mechanical effects is one of the most important of its uses, and in this, while the faradic and galvanic currents are the most commonly employed, the sinusoidal current in many cases has advantages over both, in that it is not painful, does not cause electrolytic or irritating effects and does cause marked contraction of the involuntary muscle fibers. The current should not be used when the cause of the paralysis is an acute inflammation. To use unduly strong currents thus producing an excess of contractions is especially dangerous in the presence of disease of the peripheral motor neuron since in such cases there is more or less atrophy of the muscle fibers and overstimulation will cause exhaustion and destruction of the remaining vitality. The current used should be merely strong enough to cause contraction and only a few should be produced at each sitting. If contraction can be obtained only by very strong currents postponement of such treatment may be advisable until some measure of power has been obtained by other methods. Especially is this true in anterior poliomyelitis where overtreatment may cause harm. Regarding the current to be employed, the dictum of Dr. H. C. Wood to "use the current which gives the best contraction with the least pain" in large measure holds good. Of the pole to be employed it may be stated as a general rule that when it is desired to improve the action of weakened muscles and nerves the negative pole should be placed over them, or, in other words, be the active pole.

Treatment of the wrong muscles is liable to occur and most frequently this happens in treating hemiplegia resulting from apoplexy. Contractures here frequently result due to overpowering of the extensors by the stronger flexors. The rational procedure would seem to be to improve the condition of the extensors and the writer some years ago observed benefit from this line of effort. Both the mechanical and electrotonic effects may be utilized sometimes with advantage for the treatment of pain. Great care, however, must be observed not to cause muscular contractions. "Diathermy or electric thermopenetration" should be of great value in the treatment of inflammation, and in nervous diseases this is especially manifested in the treatment of subacute or chronic neuritis. In the treatment of sciatica especially, too much cannot be said for t is also valuable in brachial or radicular neuritis, in thrombo-angeitis obliterans, and may be of some value in the paralysis due to anterior poliomyelitis. From the character of lesions present in diseases of the brain and cord, electricity would not seem to have any curative effect, but might possibly give relief to some of the symptoms.

"The Truth About Electrotherapeutics," with lantern demonstration, was given by Dr. William L. Clark. The evolution from empiricism to accurate knowledge of some of the physiological effects of electricity has been gradual until at the present time there is a sound scientific basis for the employment of electrotherapeutic measures. The purpose of this paper is to correlate the important facts concerning the physiological action of electrical currents, to plead for an unbiased study of the subject by all physicians, to urge on enthusiasts the necessity of being guarded in their claims, to recommend the addition of electrotherapeutic teaching to the curriculum of all medical schools, to urge the correction of lax legislation which permits the employment of electrotherapy by non-graduates of medicine, to emphasize the necessity for standardization of apparatus and dosage.

It is on the variability of the physiological effects of electricity that the whole superstructure of electrotherapeutics rests. The known effects produced by electricity are mechanical, electrolytic or chemical, counterirritant, thermic, actinic, psychic. Simple logical deduction only is required to reveal the application of these effects to rational therapeutics. The author deals in detail with these known effects of electricity, considers also some of the fallacious teaching which exists, and points out that electrotherapeutics should be studied from the standpoint of cause and effect rather than by outline of indications. The system is not one to be used to the exclusion of other therapeutic measures but is a worthy additional unit to the physician's armamentarium.

Dr. E. C. Titus, New York, in discussion: The American Electro-Therapeutic Association for the last few years has been endeavoring through a committee of laymen skilled in the use of electricity to formulate a standardization of therapeutic measures. The work of this committee will add materially to the armamentarium of the internist. I have been much impressed by the lack of knowledge among physicians of the influence of electricity on physiological processes. In the process of elimination this influence is marked. I have known instances in which the sinusoidal current applied for an hour between the shoulders and over the abdomen caused free evacuation of the bladder. In our understanding of the disturbances of physiological processes we have the basis for the application of electricity. There would seem to be a field also for electricity in the "habit" established by pathological conditions and continuing after the removal of the seeming cause; for example in traumatic epilepsy after trephining the convulsive "habit" may remain. In the conditions following infantile paralysis very satisfactory results have been obtained by the use of light followed by the wave current. In the cases of respiratory paralysis better results have been shown by this method than by any other treatment.

Dr. S. Lewis Ziegler: The modalities chiefly employed in ocular therapeutics are: (1) The constant or galvanic current; this includes: (*a*) The rapidly interrupted galvanic or sinusoidal current; (*b*) the decomposing galvanic current known as electrolysis, and (*c*) the therapeutic transmission of medicaments, into the tissues known as cataphoresis. (2) The faradic current. (3) The static current. (4) The high frequency or d'Arsonval current. (5) The Roentgen ray. (6) The electromagent. (7) The galvanocautery.

The type of current which has the largest field of usefulness in ocular therapeutics is the galvanic. Its action is twofold: physiologic, and biochemic. I have found that the therapeutic value of the galvanic current depends for its efficiency on the use of a high electromotive force and a low amperage. The greatest precision must be employed in the application of electricity to the eye. Sixty to seventy volts may be used, controlled down to one milliampere by a secondary carbon rheostat and a milliampere meter in circuit with the patient. The electrodes must be well constructed and be carefully watched for the possible development of defects during their use. The therapeutic action of the galvanic current depends on the effect of polarity on the subjacent tissues. The anode or positive pole is sedative in its action and is used in all inflammatory lesions of the eye. The kathode or negative pole is stimulating in its action and should be applied to atrophic conditions. The positive pole is also of value in intraocular hemorrhage where the blood clot shows no sign of absorption, and in sub-retinal hemorrhage. Certain forms of vitreous opacities also will be improved. Although glaucoma assumes an acute inflammatory type, it is not a true inflammation but a form of lymphatic stasis and here negative galvanism must be applied. The faradic current is used more especially to stimulate the paretic muscles of the eye but it is often used in combination with the galvanic current as it appears to enhance the action of the former.

Electrolysis has its greatest field of usefulness in the removal of wild hairs in trichiasis. Many instances have been recorded of enucleation of the eyeball under anesthesia produced by cataphoresis. The static current does not have a large field of usefulness in diseases of the eye but the high frequency or d'Arsonval current is used with considerable success. The very fine desiccation effects have a certain resemblance to the electrolytic action of the negative pole and is most effective when the electro-motive force is high and the amperage low. Its chief advantages are avoidance of plastic operations, freedom from recurrence and the remarkably smooth, natural appearing skin which forms over the charred area. The great field of usefulness for the Roentgen ray is the accurate localization of foreign bodies in the eyeball and orbit and following this localization the electromagnet is of much value. The galvanocautery is used chiefly to cauterize corneal ulcers which have developed a tendency to slough. It is also used to destroy infection along the edges of wounds, and I have used it to cut off an enlarged leash of blood vessels or even to make a peritomy around the corneoscleral margin when there is confirmed pannus. Many years ago I devised a galvanocaustic puncture operation for ectropion and entropion. The procedure is simple and efficient and avoids the necessity of a more extensive plastic operation. A series of deep punctures is made along the margin of the lid on the side toward which we wish the contraction to occur, the conjunctival surface in ectropion, and the skin surface in entropion. It must be evident to the unbiased observer that electricity has a most valued field of usefulness and that there still remain many things to be developed both in technic and therapy.

Dr. William H. Mackinney: The application of electricity in the treatment of genito-urinary affections may in my opinion be divided into three groups: (1) one in which we may say it is the method par excellence; (*2*) one in which it may be a valuable adjunct; (3) one in which it has been employed and discarded. I know of no pathological condition of the kidney amenable to electrical treatment, the relief of pain sometimes secured by the various currents I regard as symptomatic and without bearing on the actual pathology. In the use of the d'Arsonval current for ureteral conditions I have been unable to satisfy myself whether the results have been due to the electricity or to the gradual dilatation obtained. In atony of the bladder musculature secondary to other conditions the application of the various electrical currents is unsuccessful; but following operative measures on the enlarged prostate much can be accomplished in restoring the contractile power of the bladder musculature. In this treatment the sinusoidal current offers the greatest advantage. The thermic current facilitates absorption of the exudate the result of chronic inflammatory conditions. I have yet to see reduction in the size of the prostate, diminution in residual urine, or permanent benefit to the patient from the use of the static wave current in hypertrophied prostate. Electrolysis has a field in the treatment of infections of rather inaccessible portions of the urethra. Its greatest field of usefulness in genito-urinary disease is in the application of the thermic current in the treatment of bladder papillomata. Carcinoma of the bladder is beyond the realm of electrotherapeutic treatment.

Dr. A. B. Hirsh: Today, through the thirty years' earnest, scientific labor of those active in the American Electro-Therapeutic Association, the physical and healing properties of the different currents of electricity show a constantly improving technic. One must not overlook the great aid obtained from physical laboratory studies for ever widening industrial uses of electricity. In fractures and sprains it is possible to force back into the vessels any excess of fluid, permitting earlier repair. In deforming arthritis it is required only to remove the infective focus, restore normal bowel function, correct the diet and treat each involved joint. This is true also of true neuritis. Provided the diagnosis is correctly made a return to normal function usually ensues. In the acute variety of neuritis the static effluve followed by the 500-candle-power hooded incandescent lamp and then ionization with a 2 per cent. sodium salicylate aqueous solution removes the excessive pain in one or two treatments. In locomotor ataxia I endorse Dr. Clark's position that "extravagant claims too ridiculous for refutation have been made for electricity." Marked symptomatic relief, however, can usually be had from its use. In the association of excessive hypertension with defective metabolism patients should receive definite directions as to dietetic and hygienic correction before autocondensation to lower the pressure is given. The visit would then be incomplete without the static wave current applied by a five-inch by eight-inch metal electrode over the upper abdomen. The researches of Steel leave no doubt concerning such favorable action of certain currents on tissue change. It is my conviction that the practitioner fails in duty to his patient when not employing these measures where drug treatment is insufficient. That hospital also cannot be modern which lacks a complete electrotherapeutic plant.

Dr. William T. Johnson: While neurology in the past aided in saving electricity from its enemies in the profession, we must now be on our guard against the impression that electrotherapeutics is a transgressor if caught outside its traditional domain. Facilities for research work should be strongly urged. That this field has been so neglected is astonishing when we consider with what zeal many investigations of lesser promise are conducted. It is a reproach to our profession that some of the best studies of the influence of electricity on metabolism have been made by laymen. Whether any action other than that of heat is produced by high frequency currents is surely worthy of further investigation. Men of large experience in the use of autocondensation contend that in the control of hypertension and the relief of its associated syndrome, the best results are not obtained with apparatus designed to give the greatest heating effects. This further emphasizes the need of research laboratories, and the standardization of apparatus. Chronic Bright's disease is classed as pathologically incurable and therefore largely outside of the electrotherapeutist's jurisdiction. But even here electriity may be advantageously used to assist in relieving the symptoms that require treatment, e. g., hypertension should it be deemed desirable to reduce it. The apparent arrest of Bright's disease has been claimed by others than the electrotherapeutists, and the explanation of this fact is well stated by Dr. Alfred Stengel in a recent issue of *The Journal of the American Medical Association.* Diathermy is the best method of applying heat to any structure where heat effects are desired. The hyperemia is in every way superior to that produced by other methods as we know the heat is generated precisely where we desire it. I have had excellent results with it in poor after-results of treatment of fractures.

Dr. S. Solis-Cohen: It strikes me that, from the restrained and temperate manner in which the subject of the evening has been discussed, the period of the "howling dervisher" in electricity has passed, and that we have come to the sober consideration of its undoubted merits. The profession at large has been very much to blame that the development of electrotherapeutics has been very much retarded by its attitude toward the men who were bold enough to work in that field. I have always made use of electricity in my practice as I would make use of massage, surgical operations, drugs, or any means which promised benefit to the patient. There is naturally the field for the specialist in electrotherapeutics to whom patients needing extraordinary measures should be referred. I cannot agree with Dr. Clark in his restriction of the results of the high frequency current to the thermic effects. There are effects of this current which cannot be explained by heat. The value of high frequency measures in reducing pathological hypertension, even in retarding arteriosclerosis, is unquestionable. In the treatment of deforming arthritis and such conditions we can accomplish more with the dietetic, hygienic and medical treatment plus electricity than without it. I have recently seen a case of luetic optic neuritis in which the exudate which seemed to threaten blindness entirely disappeared and in which full vision was restored after the application of a certain form of high frequency treatment. Salvarsan, mercury and the iodids with all the necessary hygienic measures had been previously employed. The ophthalmologist who made the observations before and after the use of the electrical treatment is one of undoubted competency. If such processes can be brought about in the optic nerve they can certainly be brought about in other portions of the body in which perhaps we cannot see the results so clearly but in which we can infer the effect from the elimination of the symptoms.

Dr. G. Betton Massey: I think Dr. Mackinney drew a rather sharp line about the possibilities of electrical destruction of malignant growths within the bladder. It is exceedingly easy to apply electricity to any portion of the bladder by making a suprapubic opening. There is no traumatism at the end of the action of the current and there is destruction of the growth so far as the current is forced into it. The difficulties of the application can be controlled by the sense of touch with the gloved finger. In the woman going through the childbearing period with the incident relaxations, routine vaginal applications of electricity are of much value. More recent work in electrotherapeutics has shown us their value also in relaxed bowel conditions.

Dr. Clark, closing: Replying to the inquiry regarding the use of the static and the high frequency currents in regard to tension I meant that in hypotension I would use the former and in hypertension, the latter. The point that there may be an additional action to that of heat of the high frequency current is well taken. We have not, however, any evidence to this effect. The advantage in the reduction of blood pressure by the d'Arsonval current over the ordinary incandescent baths is that the heat penetrates the entire body. The question of the action of the galvanic current and the reverse action of the poles is one but little understood and there are many instances in daily practice in which the principle is valuable. Recently, for a genito-urinary surgeon, I saw a case of bleeding from the urethra in which, since treatment by reversal of the currents was given, there has been no recurrence of the bleeding, with a practically normal posterior urethra. A knowledge of the physiological effects of these poles is essential. I believe the profession is no longer justified in looking askance on electrotherapeutics, and further I believe that it now looks on the subject with an open mind.

Samuel McClary, III, Reporter.

SOMERSET—MARCH

The Somerset County Society met at Meyersdale, March 20, with eight members present. There was no set program, but the meeting was an important, interesting and profitable one. The matter of a better attendance and new membership was considered and all members were requested to canvass personally with the hope of increased interest as well as increased membership. There are physicians in the county who should be connected with the society. Bills to be presented to the present Legislature which largely concern the physician were discussed and acted on, as well as matters of a more personal character. It is not fair, neither is it desirable, that a few should have to look after all the interests of the individual members and of the society as a whole; therefore, we are beginning now to secure a very full turn-out for the meeting of May 15, which on account of possible bad roads will be held at Rockwood. We are anticipating a visit from the councilor for this district very soon, and we hope he can be with us at that meeting.

H. C. McKinley, Reporter.

WESTMORELAND—APRIL

The Westmoreland County Society met in the City Hall, Greensburg, April 3 at 2 p. m., with forty-three members present and President Prothero in the chair. At the usual business session the Auxiliary Medical Defense Committee of Westmoreland County was appointed, consisting of Drs. Thomas P. Cole, C. E. Taylor and U. H. Reidt. This committee shall formulate such plans as may be necessary in holding intact the practice of members who shall enlist in Red Cross Service, so that on their return they may find their practice as they left it. It is to be hoped that the hearty cooperation of the members may be had in the work of this committee. A Committee on Arrangements for the annual banquet to be held in May was appointed, consisting of Drs. J. J. Singer, U. H. Reidt and Thomas P. Cole.

Dr. Otto C. Gaub, surgeon to the Allegheny General Hospital, Pittsburgh, addressed the society on "The Acute Surgical Abdomen with Especial Reference to the Differential Diagnosis." Dr. Gaub presented a chart showing the probable order of frequency as follows: (1) Acute infective appendicitis; (2) gallstone or renal colic; (3) acute mechanical obstruction of the bowel, strangulation of external hernia type; (4) ruptured tubal pregnancy; (5) perforation of duodenal, gastric or typhoidal ulcer; (6) rupture of acute suppuration of fallopian tube; (7) acute mechanical obstruction of the bowel, internal bands, volvulus and internal hernia type; (8) ovarian cyst with twisted pedicle. Dr. Gaub presented the differential diagnosis in an instructive and entertaining manner and especially emphasized the necessity of an early diagnosis by the general practitioner in order to reduce the mortality. He stated that gastric lavage by means of the stomach tube or the nasal tube left in situ for oft-repeated washings, was a valuable agent in the relief of pain, especially in acute infective appendicitis and gallstone colic and was also useful in differential diagnosis. The postoperative treatment of the ordinary case consists in giving no water by mouth for twenty-four hours, normal saline solution per rectum by the drop method and gastric lavage for excessive vomiting.

The discussion was opened by Dr. Thomas P. Cole followed by remarks by Drs. W. H. Taylor, C. E. Taylor and U. H. Reidt.

Dr. F. L. Marsh reported a case of mercury cyanid poisoning, which is published on another page of this issue.

Ellsmer L. Piper, Reporter.

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Organized 1848 · Incorporated, December 20, 1890

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Charles, William S., 2110 Carson St.
Cheesman, Leroy H., Keenan Bldg.
Christian, William H., 6297 Frankstown Ave.
Clark, Astley C., 3420 Butler St.
Clark, Harry E., Sheridan, Pittsburgh.
Clark, Henry H., 225 Atlantic Ave.
Clark, H. G., City Home and Hospital.
Clark, James W., 5173 Penn Ave.
Clark, Nelson H., Highland Bldg.
Clark, Robert W., 655 Maryland Ave.
Clark, Walden A., 4407 Butler St.
Clarke, Julius J., 6104 Penn Ave.
Clarke, Robert C., 129 S. Highland Ave.
Cochran, T. Preston, 2301 Salisbury St.
Cohen, Morris Aaron, 811 Wylie Ave.
Cohoe, Benson A., 705 N. Highland Ave.
Colcord, Amos W., Clairton.
Coleman, Thomas, 2137 Center Ave.
Collins, J. Harry, 1024 Highland Bldg.
Colwell, Alexander H., 5476 Penn Ave.
Connelly, William J., 401 Fourth Ave., Carnegie.
Conti, Gaetano, 29 Chatham St.
Conti, Giacomo, 66 Washington St.
Conway, John M., 611 Warrington Ave.
Cope, Pierson C., Braddock.
Cort, Austin L., Wilson.
Cossitt, Henry De La, 818 Ann St., Homestead.
Cotton, Robt. W., 600 Chartiers Ave., McKees Rocks.
Cowan, Victor W., 823 Fifth Ave., McKeesport.
Craig, Ford B., 518 Second Ave., Pitcairn.
Craney, Edward T., 7431 Washington Ave., Swissvale.
Cratty, Alfred R., 813 Wylie Ave.
Cratty, LeRoy D., 914 South Ave., Wilkinsburg.
Crawford, Herbert P., Crafton.
Crawford, J. Slater, 17 Center Ave., Ingram.
Creaven, Mathew F., 823 Carson St.
Creighton, Lawrence C., Unity Station.
Cristler, J. W., Shippingport (Beaver Co.).
Croll, Walter Lewis, 400 W. North Ave., N. S.
Crozier, Alfred W., 5008 Penn Ave.
Cruikshank, Omar T., Jenkins Arcade Bldg.
Cubbison, Carl J., 1304 Wood St., Wilkinsburg.
Cunningham, Daken W., Bellevue.
Cunningham, George S., 414 N. Highland Ave.
Cunningham, Wm. N., 1911 Braddock Ave., Swissvale.
Curll, Clyde L., 99 Hazelwood Ave.
Curry, Glendon E., Westinghouse Bldg.
Cutts, Wen Galaway, 2834 Wylie Ave.
Daggette, Alvin S., 400 S. Craig St.
Davis, Adam C., Hites.
Davis, David Moore, Broughton.
Davis, Fannie, 511 Diamond Bank Bldg.
Davis, Isaac, 1842 Center Ave.
Davis, James A., 4704 Penn Ave.
Davis, James R., 1000 Chartiers Ave.
Davis, Lawrence J., 32 Main St., Carnegie.
Davis, Nelson P., 1405 Fifth Ave.
Davison, Robert E., 8152 Jenkins Arcade Bldg.
Dawson, Stephen A., Miller's Run Road, Cuddy.
Day, Ewing W., Westinghouse Bldg.
Dean, Howard E., 428 Liberty Ave., Braddock.
Dearth, Walter A., 7008 Jenkins Arcade Bldg.
Decker, Harry R., 1126 Highland Bldg.
DeMuth, J. Smith, Jenkins Bldg.
Denny, Clark B., Oakdale.
Denslow, Walter B., 3652 California Ave.
Devlin, Kathryn L., 815 Steuben St.
Dickey, Edward S., Jenkins Arcade Bldg.
Dickinson, B. M., Keenan Bldg.
Dickinson, James J., 1132 Portland St.
Dickson, Joseph Z., Renshaw Bldg.
Dickson, Robert W., Edgeworth Lane, Sewickley.
Diller, Theodore, Westinghouse Bldg.
Diltz, Harry C., 714 Wood St., Wilkinsburg.
Disque, Thomas L., Jenkins Bldg.
Dixon, John W., 820 Wood St., Wilkinsburg.
Dodds, Wallace T., Penn and Highland Aves.
Donaldson, Holland H., 3600 Fifth Ave.
Donaldson, John S., 486 Lincoln Ave., Bellevue.
Donaldson, Walter F., 308 Diamond Bank Bldg.
Dornbush, Bertha E., 228 Amber St.
Douthett, Joseph M., Center Ave. and Graham St.
Dranga, Amelia A., Lyceum Bldg.
Duff, A. William, Keenan Bldg.
Duffy, Charles A., 3417 Ward St.
Duggan, John P., 817 Wylie Ave.
Duncan, Ira C., East McKeesport.
Duncan, Joseph L., Jenkins Bldg.
D'zmura, Andrew P., 809 Westinghouse Bldg.
Eakins, Olin Martin, Farmers Bank Bldg.
Easton, John S., Jenkins Arcade Bldg.
Eaton, Percival J., 715 N. Highland Ave.
Eber, Samuel I., 4120 Jenkins Arcade Bldg.
Ecker, Charles S., Oakmont.
Edgar, Joseph C., 609 Allegheny Ave., Oakmont.
Edwards, James F., Bureau of Health.
Edwards, Ogden M., Jr., 5607 Fifth Ave.
Egan, Joseph P., 218 Braddock Ave., Braddock.
Eggers, August H., 5815 Rural Ave.
Eicher, Chas. G., 604 Chartiers Ave., McKees Rocks.
Eisaman, Ottice N., 7137 Idlewild St.
Eisenhart, James E., 1323 Federal St., N. S.
Ellenberger, Jacob W. E., 813 Wood St., Wilkinsburg.
Elliott, Andrew H., 625 California Ave., Avalon.
Elliott, George B. C., 809 North Ave., Millvale.
Ellis, Charles J., 902 E. E. Trust Bldg.
Elphinstone, J. Wade, 3544 California Ave.
Elterich, Theodore J., 724 Highland Bldg.
Ely, George W., 7105 Frankstown Ave.
Emmerling, Karl A., 476 Rebecca St.
Engle, Guy D., 745 Trenton Ave., Wilkinsburg.
Entwisle, Robert Morgan, 4625 Liberty St., East Liberty Sta.

Erhard, Ernest L., Glassport.
Ertzman, Richard L., 710 Greenfield Ave.
Evans, David R., 2006 Carson St.
Evans, Edward E., 2715 Fifth Ave., McKeesport.
Evans, Thomas, Jr., Highland Bldg.
Everhart, James K., 3339 Forbes St.
Ewing, William B., Westinghouse Bldg.
Ewing, William H., Herron and Wylie Aves.
Eyman, William G., 976 Greenfield Ave.
Fausold, Lucian C., Glenshaw.
Fawcett, Charles E., Broadway and Potomac St.
Feldstein, George J., 2037 Center Ave.
Feltwell, Myrtle R., Sewickley.
Fenollosa, Sydney K., 4634 Fifth Ave.
Ferner, Joseph J., 5541 Ellsworth Ave.
Ferrari, Pasquale, 707 Webster Ave.
Ferree, Robert Burnsides, 622 Chestnut St.
Fetterman, James M., 919 Fulton St.
Fife, S. John S., Bridgeville.
Findley, Wm. McCrae, 1101 Franklin St., Wilkinsburg.
Fink, Harry M., Bessemer Bldg.
Finkelpearl, Abraham, 1906 Fifth Ave.
Finkelpearl, Henry, 1906 Fifth Ave.
Fischer, Henry F., Springdale.
Fischer, N. Arthur, 202 Forbes Bldg.
Fisher, Harrison Horton, 530 Lincoln Ave.
Fisher, Joseph W., 3517 East St., Observatory Sta.
Fiske, Eben W., 325 N. Murtland Ave.
Flood, Henry C., 918 S. Negley Ave.
Fogleman, Adam P., Munhall.
Forster, William A., 921 Chartiers Ave.
Foster, Curtis S., 308 Diamond Bank Bldg.
Foster, Eli N., 115 Climax St., Mt. Oliver Sta.
Foster, James LeRoy, Freeport Rd., Hoboken.
Foster, William S., 252 Shady Ave.
Fouse, Orlando, 215 N. Craig St.
Frank, Austin C., Jenkins Arcade Bldg.
Franklin, Paul H., 417 Jenkins Bldg.
Frederick, Frank H., 1403 Chateau St.
Frederick, William, Chartiers Ave., W. E.
Freed, Raymond S., 2010 Fifth Ave.
Freeland, James R., 4715 Fifth Ave.
Frodey, Raymond J., Empire Bldg.
Frost, Ellis M., 311 Neville St.
Frye, Daniel W., 2714 Glenmore Ave., Dormont.
Fulton, Louis C., Liberty Bank Bldg.
Gardiner, Francis G., 5200 Butler St.
Gardner, Christopher C., 832 Braddock Ave., Braddock.
Gardner, E. Roy, Ben Avon.
Gardner, William E., 733 Lockhart St.
Gardner, William H., 733 Lockhart St.
Gaub, Otto C., Keenan Bldg.
Gelb, Morris J., 905 Keenan Bldg.
George, Shaul, Liberty Bank Bldg.
Gibans, Myer J., 972 Liberty Ave.
Gilliford, Robert H., 1224 Fayette St., N. S.
Gillis, G. H., 3725 Brighton Rd.
Gilmore, James L., 5604 Pennsylvania Ave.
Glynn, William H., 273 N. Craig St.
Godlewski, Stanislaus A., 500 Talbot Ave., Braddock.
Goehring, Walter G., 7644 Frankstown Ave.
Gold, Joseph B., 5007 Jenkins Arcade Bldg.
Goldberg, Samuel, 817 Fifth Ave., McKeesport.
Golden, John F., W. Liberty & Potomac Sts., Dormont.
Golden, John P., 2229 Center Ave.
Goldsmith, Luba Robin, 520 N. Negley Ave.
Goldsmith, Maurice F., Rosslyn Farm, Carnegie.
Goldsmith, Milton, Jenkins Arcade Bldg.
Goodpaster, William H., Option.
Goodsell, John W., New Kensington (Westm. Co.).
Goodwin, Ralph D., 104 Electric Ave., E. Pittsburgh.
Gorfinkell, Julius, 5548 Avondale Place.
Gorrell, J. Franklin, 1410 S. Baltimore Ave., Tulsa, Okla.
Gould, Margaret A., 606 Sherman Ave., N. S.
Goulding, Charles O., 1110 Highland Bldg.
Graham, Norman R., Thirteenth and N. Canal Sts., Sharpsburg.
Graham, Walter G., 7423 Race St.
Graver, Edward, 5537 Fifth Ave.
Gray, Earl P., 510 Hays St., Wilkinsburg.
Grayson, Thomas Wray, Westinghouse Bldg.
Greenberger, Bessie, 2016 Center Ave.
Greer, Martin N., 1550 Lowrie St., N. S.
Greig, Thomas G., 1501 Carson St.
Grekin, Jacob, 1538 Center Ave.
Grier, George W., Jenkins Bldg.
Griffith, John P., 4715 Fifth Ave.
Grogin, Paul B., 2031 Center Ave.
Gross, Arthur H., 688 Forest Ave., Bellevue.
Gross, Julius Edward, 508 Jenkins Bldg.
Groth, Herman, 1523 Brighton Rd., N. S.
Grove, Robert E., 1600 Maplewood Ave., Wilkinsburg.
Guerinot, Albert J., 7090 Jenkins Bldg.
Guffey, Albert A., 310 Shaw Ave., McKeesport.
Guy, William H., 3725 Brighton Rd., N. S.
Hagemann, John A., Highland Bldg.
Hager, Christian, Braddock.
Hagmeier, Otto C., Reinholds (Lancaster Co.).
Halferty, Homer E., 503 Rosedale St.
Hall, Henry M., Jr., 1026 Lincoln Ave.
Hall, John P., 6554 Frankstown Ave.
Hall, William C., 144 Lincoln Ave.
Hall, William T., Fort Myers, Fla.
Halpert, Louis H., 16 N. Duquesne Ave., Duquesne.
Halverstadt, Charles H., Perrysville.
Hamer, Edward E., 1512 Pennsylvania Ave., N. S.
Hamilton, James M., Oakmont.
Hamma, James A., 408 Chartiers Ave., Carnegie.
Hampsey, Alexander R., 724 N. Negley Ave.
Handmacher, Benjamin B., 3617 Butler St.
Hankey, Stacy M., 828 Heberton Ave.
Harris, George Randolph, Jr., 341 Oakland Ave.
Harris, Ira C., 637 Carey Ave.
Harrison, Ralph Hamilton, Frankstown Ave. and Paulson St.
Hartman, Clifford C., 5754 Howe St.
Hartman, John C., Jr., 1716 Brinton Ave., N. Braddock.
Hartung, Frederick A., 450 Brownsville Rd., Mt. Oliver Sta.
Harvey, Walter B., 1000 Ridge Ave.
Hauck, Charles A., 402 Larimer Ave.
Hawkins, John A., Jenkins Arcade Bldg.
Haworth, Elwood B., 145 N. Craig St.
Hayden, Walter George, 7008 Jenkins Arcade Bldg.
Hayes, Charles H., 125 Hazelwood St.
Hays, George L., 1402 Murray Ave.
Haythorn, Samuel R., The Wm. H. Singer Memorial Research Laboratory.
Hazlett, T. Lyle, Diamond Bank Bldg.
Heard, James D., Cardiographic Lab., St. Francis Hosp., Forty-Fifth St.
Heath, Robert M., Liberty Road and Hazel Ave., Fair Haven.
Hechelman, Herman W., 808 First National Bank Bldg., G. P. O.
Heck, Fred H., 1379 Lincoln Ave.
Heckel, Edward B., Jenkins Bldg.
Hector, Louis H., 706 First St., N. S.
Hegarty, John P., 818 Wylie Ave.
Heilman, Martin W., Tarentum.
Heisey, William C., 2123 Verseilles Ave., McKeesport.
Henderson, Walter Lowry, East McKeesport.
Henney, Bernard J., 213 Fourth Ave., Carnegie.
Henninger, Charles H., Jenkins Arcade Bldg.
Henry, Edwin B., Ingomar.
Herman, Charles E., Carothers Ave. and 27 Hill St., Glendale, Carnegie.
Hersman, Christopher C., 2228 Carson St., S. S.
Hesser, Andrew J., 4912 Liberty Ave.
Hetzel, William B., 124 Homewood Ave.
Hibbs, Robert C., Jenkins Arcade Bldg.
Hicks, Abram V., 5408 Penn Ave.
Hieber, H. Chester, Jenkins Bldg.
Hierholzer, John C., Jenkins Bldg.

Hiett, George W., 4025 Perrysville Ave., N. S.
Hill, Charles A., Keenan Bldg.
Hill, Ralph L., Carnegie.
Hinchman, Robert S., 127 Fifth Ave., McKeesport.
Hirsch, Leon, Jenkins Arcade Bldg.
Hocking, William C., Duquesne.
Hodgkiss, James, 47 Boggs Ave.
Hodgson, William E., Glassport.
Hodkinson, Wm. A., 110 Crafton Ave., Crafton.
Hoffmann, Joseph H., Pennala Farms, R. D. 2, Gadsden, Ala.
Hoffmann, Norbert L., 111 Steuben St.
Hogsitt, Smith F., Jenkins Arcade Bldg.
Hollander, Lester, East Pittsburgh.
Holliday, George A., Jenkins Arcade Bldg.
Holstead, France W., Bakerstown.
Holtz, Wilbur M., Castle Shannon Rd.
Hood, Robert T., 2980 W. Liberty Ave.
Hopkins, Alfred J., 403 E. E. Trust Bldg.
Hopkins, Herbert J., 403 E. E. Trust Bldg.
Hopper, Arthur W., Bridgeville.
Hufford, James F., Elrama (Washington Co.).
Huggins, Raleigh R., 1018 Westinghouse Bldg.
Hughes, Reese W., 427 Third Ave.
Hughes, Willet P., 706 Highland Bldg.
Hunter, Andrew, 708 Walnut St., McKeesport.
Husted, Alonzo Don, 73 Allen Ave.
Hutchinson, Henry A., Dixmont.
Huth, John A., Natrona.
Iams, J. Donald, Chartiers Ave., Sheridanville.
Iland, Edward M., Coraopolis.
Ingram, Clarence H., 903 E. E. Trust Bldg.
Jack, Myrtle M., 1515 Beechview Ave.
Jackson, Chevalier, Walnut at Seventeenth St., Philadelphia.
Jackson, Daniel F., Jenkins Arcade Bldg.
Jackson, Joseph M., 11 Stevenson St.
Jahn, August H., 3535 Butler St.
Jennings, Charles W., 304 Highland Bldg.
Jennings, Samuel D., Sewickley.
Jenny, Thomas G., Penn and Negley Aves.
Jew, Henry D., 2306 Arlington Ave.
Johnson, Samuel H., 4025 Butler St.
Johnston, George C., Jenkins Arcade Bldg.
Johnston, James I., 201 S. Craig St.
Johnston, James R., 276 N. Craig St.
Johnston, Robert C., Springdale.
Jones, Clement R., Empire Bldg.
Jones, Herbert Leroy, 4819 Second Ave.
Jones, Wesley W., 822 Wood St., Wilkinsburg.
Jones, William W., 940 Western Ave.
Jordan, Stewart S., 1902 Jenny Lind St., McKeesport.
Kalet, Harry J., 815 Wylie Ave.
Katzenstein, M. Boyd, 1504 Shady Ave.
Kaufman, Albert S., New Kensington (Westm. Co.).
Keebler, Charles Barton, 604 Chartiers Ave., McKees Rocks.
Keller, Nile P., 428 Fourth Ave.
Kellogg, Frederic S., 654 Herron Ave.
Kelly, J. Clarence, Ruben Bldg., McKeesport.
Kelso, John S., 740 California Ave., Avalon.
Kennedy, David D., 1720 Murray Ave.
Kenworthy, Frank, 702 E. E. Trust Bldg.
Kern, Frank M., Dawson St., Oakland Station.
Kerr, Allen M., 5153 Penn Ave.
Kerr, J. Purd, 1908 Carson St.
Kerr, Thomas R., Oakmont.
Keyser, Charles F., 15 N. Duquesne Ave., Duquesne.
Kifer, Logan M., 537 Ringgold St., McKeesport.
King, Cyrus B., 844 Ridge Ave.
King, Isaac K., 226 Brownsville Rd., Mt. Oliver Sta.
King, Richard A., 2517 Perrysville Ave.
King, S. Victor, 918 Westinghouse Bldg.
Kirch, John P., E. E. Trust Bldg.
Kirk, James A., Carrick.
Kirk, Thomas T., 4908 Liberty Ave.
Kirk, William H., Keenan Bldg.
Klinzing, Henry, 629 Brookline Blvd.
Klotz, Oskar, 4720 Wallingford St.
Kneedler, G. Clyde, Jenkins Bldg.
Knorr, Lawrence R., 130 Larimer Ave., E. Liberty Sta.
Knowlton, James M., 100 Haynes Ave., San Antonio, Tex.
Kocher, Quintin S., Gradatim.
Koenig, Adolph, 1111 Westinghouse Bldg.
Kohberger, Henry P., 405 Larimer Ave.
Kolski, John J., Fifth and Allen Aves., Donora (Wash. Co.).
Konantz, Orien F., 1667 Hampshire St., Quincy, Ill.
Koontz, David M., New Kensington (Westm. Co.).
Korhnak, August J., 1026 Talbot Ave., Braddock.
Kraft, Alfred H., 47 S. Eleventh St.
Krebs, Adolph, Jenkins Arcade Bldg.
Krepps, Allen L., Bessemer Bldg.
Krieger, Geo. L., New Kensington (Westm. Co.).
Kunkel, Howard W., 3701 Forbes St.
Kvatsak, Julius Joseph, 31 McClure Ave., N. S.
Lacock, Lester E., 2507 Perrysville Ave.
Lafferty, Joseph A., 604 Chartiers Ave.
Lake, Harry S., Willock.
Lamb, Wah Jean C., Homestead.
Lamon, Goldson T., New Kensington (Westm. Co.).
Landon, Lyndon H., Carnegie Bldg.
Lange, J. Chris., 158 Bellefield Ave.
Lange, William J., 6206 Penn Ave.
Langfitt, William S., Jenkins Arcade Bldg.
Langham, William H., 811 West St., Homestead.
Larimore, Fred Campbell, 500 W. North Ave., N. S.
Lasday, Louis, Second and Flowers Aves.
Lauer, Cyril F., 244 Forty-Sixth St.
Lauffer, Chas. A., 521 Franklin Ave., Wilkinsburg.
Laughlin, John P., 131 N. Highland Ave.
Laurent, F. Victor, 107 Morewood Ave.
Lawson, William E., Ann St., Homestead.
Lear, I. N., 175 Iten St.
Lebeau, Samuel I., 1520 Center Ave.
Leffler, William H., 217 Eleventh Ave., McKeesport.
Lehner, William H., 1904 Carson St.
Leibold, George, 169 Iten St., N. S.
Leininger, Charles P., Jenkins Arcade Bldg.
Lemmer, J. Conrad, 324 South Ave., Wilkinsburg.
Lerch, Donald G., 3616 California Ave.
Lewin, Adolph L., 3703 Penn Ave.
Lewis, Edward C., Verona.
Leydic, Clarence L., Tarentum.
Leydic, Cyrus C., Natrona.
Lichtenfels, Frederick V., Forbes and Halket Sts.
Lichtenstein, Myer B., 1532 Center Ave.
Lichty, John A., 4634 Fifth Ave.
Lindeman, Charles E., 7141 Hamilton Ave.
Lindsay, Charles S., 3401 McClure Ave., N. S.
Lindsay, James A., 622 Jenkins Bldg.
Linn, J. George, Highland Bldg.
Lippincott, J. Aubrey, Jenkins Bldg.
Litchfield, Lawrence, 5431 Fifth Ave.
Logan, Edward P., 1111 Arch St.
Long, Herbert M., 4100 Main St.
Long, James McMaster, 5532 Baywood St.
Love, James H., 622 Front St., Verona.
Lowrie, Robert N., 412 Carey Ave., Braddock.
Lowrie, Walter Jas., 714 Braddock Ave., Braddock.
Ludwig, David B., Pitcairn.
Lurting, Clarence W., 1707 Fremont St.
Luther, John M., 800 Keenan Bldg.
Lutz, Carl L., 637 California Ave., Avalon.
Lyon, Alvin K., 413 North Ave., Millvale.
McAboy, C. Bradford, 7136 Hamilton Ave.
McAdams, Edward C., 503 Brushton Ave.
McAdams, Robert J., 4900 Liberty Ave.
McBride, John L., 172 Center Ave., Emsworth.
McCague, Edward J., 100 Tennyson Ave.
McCahill, Morton, 5116 Lytle St.
McCarrell, James R., 1115 Bidwell St.
McCausland, Wm. S., 10 Grant Ave., Duquesne.

McClure, James D., 436 Rebecca Ave., Wilkinsburg.
McClymonds, Horace S., Wilkinsburg.
McComb, Samuel Forbes, Tarentum.
McCombs, Willison H., 26 S. Fourteenth St.
McConnell, Thos. E., New Kensington (Westm. Co.).
McConnell, William John, 927 Western Ave.
McCorkle, Samuel C., 3301 Brighton Rd.
McCorkle, Wm. P., 653 Sherwood St., Sheridanville.
McCormick, Earl V., Grant St., Munhall.
McCormick, John C., 224-226 Shiloh St.
McCracken, William, 209 S. St. Clair St.
McCready, E. Bosworth, 909 Keenan Bldg.
McCready, Frank L., Sewickley.
McCready, J. Homer, 816 Empire Bldg.
McCready, James M., Sewickley.
McCready, Joseph A., 506 N. Highland Ave.
McCready, Robert J., 909 Keenan Bldg.
McCulloch, William P., Cheswick.
McCullough, John F., 7243 Idlewild St.
McCune, Caleb, 802 Fifth Ave., McKeesport.
McCune, David P., 430 Shaw Ave., McKeesport.
McCune, Samuel G., Buena Vista.
McCurdy, Stewart L., 8103 Jenkins Arcade Bldg.
McFarland, Wm. W., 1202 E. E. Trust Bldg.
McGarvey, Samuel C., Bridgeville.
McGeagh, Albert C., 5801 Fifth Ave.
McGeary, William J., R. D. 1, Sharpsburg.
McGinley, Joseph Leo, Highland Bldg.
McGrath, John F., 1434 Fifth Ave.
McGuire, Hugh E., Pittsburgh Life Bldg.
McKee, Carlisle E., Park Bldg.
McKee, George J., Westinghouse Bldg.
McKelvy, James P., 519 N. Highland Ave.
McKenna, William B., 918 Westinghouse Bldg.
McKennan, Moore S., 3612 Dawson St.
McKennan, Thomas M. T., Jenkins Arcade Bldg.
McKibben, Alpheus, 127 N. Highland Ave.
McKibben, Samuel H., 1103 E. E. Trust Bldg.
McKinney, William G., 6022 S. Main St.
McKinniss, Clyde R., Bridgeville, R. D. 3.
McKinnon, Charles L., McKees Rocks.
McLallen, James I., 801 Wood St., Wilkinsburg.
McLenahan, Thomas M., Greenfield Ave.
McMaster, Gilbert C., 1903 Baltimore Ave.
McMurray, Thomas E., Trenton Ave., Wilkinsburg.
McNall, James M., 718 Wood St., Wilkinsburg.
McNaugher, Samuel N., 2341 Perrysville Ave.
McNeely, John F., Munhall.
McNeil, George W., 6435 Frankstown Ave.
McQuaid, Joseph R., Leetsdale.
McScott, Karl, 231 Oakland Ave.
Macdonald, Clarence P., 123 Beltzhoover Ave.
Macfarlane, James W., Westinghouse Bldg.
MacLachlan, Archibald A., Empire Bldg.
Maclachlan, W. W. G., 5304 St. James St.
Mackrell, John S., 5301 Liberty Ave.
Magoffin, Montrose B., 4630 Fifth Ave.
Maits, Charles B., 117 S. Atlantic Ave.
Mallison, Elizabeth C., 512 Sixth Ave., McKeesport.
Marcus, Samuel J., 1641 Fifth Ave.
Marick, Simon W., 1520 Center Ave.
Markel, James Clyde, 918 Westinghouse Bldg.
Marks, Orrie Lester, 542 Brookline Blvd.
Marshall, Calvin C., 427 Charles St., Knoxville.
Marshall, Caroline S., 7045 Hamilton Ave.
Marshall, Watson, Diamond Bank Bldg.
Marshall, William N., Aspinwall.
Martin, David B. W., 2 Broadway.
Martin, Elizabeth Leiper, Princeton, N. J., R. D. 3.
Martin, George E., Duquesne.
Martin, John L., 401 N. Highland Ave.
Martin, W. Walton, Main St. and Penn Ave.
Mase, Jesse Z., 5620 Forbes St.
Mateer, H. O., 2015 Carson St.
Matheny, A. Ralston, 1105 E. E. Trust Bldg.
Mathewson, Franklin W., Oakdale.
Mattox, Edgar E., 2102 Fifth Ave.
Maxwell, W. Clark, 708 Highland Bldg.
Mayer, Edward E., Keenan Bldg.
Mayer, William H., 212 Charles St.
Meanor, Harold Henderson, Coraopolis.
Mechling, Curtis Campbell, Jenkins Arcade Bldg.
Mercur, Wm. H., Fifth Ave. and St. James St.
Meredith, Evan William, Highland Bldg.
Metzgar, Daniel A., 600 Braddock Ave., Braddock.
Metzger, George, 1007 Chestnut St., N. S.
Miller, Franklin B., Fulton Bldg.
Miller, Harold A., 219 Sixth St.
Miller, J. M., McDonald (Washington Co.).
Miller, James A., Braddock.
Miller, Laird O., 104 North Ave., E.
Miller, Oliver L., 104 North Ave., E.
Miller, Robert T., Jr., 1226 Murray Hill Ave.
Miller, Thomas A., 59 Rogers Ave., N.
Miller, William T., 313 Sixth St., McKeesport.
Milligan, John D., 345 Fourth Ave.
Milligan, Robert, Westinghouse Bldg.
Milligan, Samuel C., Jenkins Bldg.
Mills, S. Roy, 834 Braddock Ave., Braddock.
Mills, Wm. W., 4th and Kennedy Sts., Duquesne.
Minnich, William C., 756 Chartiers Ave., McKees Rocks.
Mitchell, Atlee D., 4125 Main St.
Mitchell, Lewis T., Aspinwall.
Mohan, John F., 1600 Beaver St.
Montgomery, Ellis S., Jenkins Bldg.
Montgomery, W. Harry, Wall and 2nd Sts., Pitcairn.
Moran, Timothy J., Jenkins Arcade Bldg.
Morgan, Joseph S., Stratford Ave., Crafton Heights.
Morris, Alanson F. B., 6901 Hamilton Ave.
Morrow, H. Wilson, Swissvale.
Moyer, Irwin J., 3525 Forbes St.
Moyer, Ray P., E. E. Trust Bldg.
Mullin, C. Elmer, Cambridge Springs (Craw. Co.).
Munster, James A., 713 Arch St., N. Diamond Sta.
Murdoch, J. Floyd, Bessemer Bldg.
Murphy, Arthur Irwin, 5310 St. James Terrace.
Murphy, Harry L., 2946 Hutton Ave.
Murray, Charles S., Sewickley.
Murray, Robert J., 42 Broad St., Sewickley.
Nason, F. Thoburn, Ruben Bldg., McKeesport.
Naylor, Mary A., 5452 Penn Ave.
Nealon, William A., 1021 Highland Bldg.
Neeley, Elmer E., 1302 Pennsylvania Ave., N. S.
Neely, J. Frank, 3909 Perrysville Ave., N. S.
Neff, Edward L., 920 Park Bldg.
Nelan, Thomas G., 6223 Penn Ave.
Nelson, Christian, 1231 Woodland Ave.
Nettleton, DeWitt B., Sewickley.
Nevins, Harry, 513 N. St. Clair St.
New, Grant J. A., 917 Carson St.
Nicholls, J. Calvin, 502 Braddock Ave., Braddock.
Noah, Harry Gardner, City Tuberculosis Hosp.
Norris, Scott A., 308 Eighth Ave., Homestead.
Nowry, Samuel E., 405 Annie St., Wilmerding.
O'Brien, Michael E., 2808 Sarah St.
O'Brien, William D., Hazelwood Ave.
O'Hagan, Walter L., 1020 Brookline Blvd., South Hills, Pittsburgh.
Ohail, Joseph C., 412 W. North Ave., N. S.
O'Hara, Warren T., New Kensington (Westm. Co.).
Ohlman, Isaac L., 8122 Jenkins Arcade Bldg.
Opipari, Achilli U., 31 Chatham St.
Orbin, Walter B., 5210 Harriett St.
Ord, Edward Y., 1112 S. Union Ave., McKeesport.
Orr, Charles A., Crafton.
Orris, Charles S., 169 Brackenridge Ave., Tarentum.
Osterloh, Chas. T., 116 E. North Ave., N. S.
Owens, Charles K., Jenkins Arcade Bldg.
Owens, John R., 3337 Dawson St.
Oyer, Harry W., Jenkins Bldg.
Palmer, Chauncey L., Washington Rd., Mt. Lebanon.
Patterson, Ellen James, Westinghouse Bldg.
Patterson, Fred L., Imperial.

Patterson, Harry B., Highland Bldg.
Pearson, Eugene O., 3426 Ward St.
Perkins, David M., 516 Federal St., N. S.
Pershing, Frank S., 768 Penn Ave., Wilkinsburg.
Pettit, Albert, Keenan Bldg.
Phillips, John S., 614 Chestnut St., N. S.
Phillips, Nathan F., Washington Ave., Mt. Lebanon.
Pierce, Amos M., West Elizabeth.
Pierce, Glenn McK., 3408 Versailles Ave., McKeesport.
Piper, Elmer N., New Kensington (Westm. Co.).
Polk, Oscar I., 874 Braddock Ave., Braddock.
Pollock, William F., 1912 Carson St.
Pool, Stewart N., 7000 Penn Ave.
Porter, John, 1000 Park Ave., McKeesport.
Potts, James A., 15 Shiloh St.
Price, Albert D., 127 Hazelwood Ave.
Price, Henry T., 1011 Westinghouse Bldg.
Proescher, Frederick, Vanadium Bldg., Oakland Sta.
Purman, John, 8th and West Sts., Homestead.
Pyle, William T., 7479 McClure Ave., Swissvale.
Radin, Samuel P., 646 Fifth Ave.
Rafferty, Donald G., University Club.
Rall, George W., Liberty Bank Bldg.
Ralston, B. Stewart, Neville St. and Center Ave.
Ramsey, Harvey Edwin, 3715 California Ave.
Ramsey, William S., Coraopolis.
Rankin, Charles A., 1016 Walnut St., McKeesport.
Ransom, Frederick P., 918 Beech Ave.
Ratner, Simon Harry, 5204 Butler St.
Rauch, Harvey M., 738 Warrington Ave.
Ray, William B., 212 Jenkins Bldg.
Read, John, 530 Fifth Ave., McKeesport.
Rectenwald, John J., 132 Brownsville Road, Mt. Oliver Sta.
Redmond, Maurice S., 331 S. Pacific Ave.
Reed, Charles L., Eye and Ear Hospital.
Reed, I. Bebout, Crafton.
Reed, John C., 39 Duquesne Ave., Duquesne.
Reif, Charles E., 616 Chestnut St., Allegheny.
Reiter, David, 613 Eighth Ave., Homestead.
Rhodes, Frederick A., 5119-5120 Jenkins Arcade Bldg.
Ribetti, G. Thomas, 933 Bedford Ave.
Richey, DeWayne G., Mercy Hospital.
Ricketts, John G., 199 Steuben St., W. E.
Riethmuller, Albert Herman, 425 Grant Ave., Millvale.
Rigg, John E., 820 Wood St., Wilkinsburg.
Riggs, Elliott S., 38 W. Prospect Ave., Washington (Washington Co.).
Rimer, Frank H., Municipal Hospital.
Rinard, Charles C., Homestead.
Rinehardt, Stanley M., Jenkins Arcade Bldg.
Ritchey, Elmer C., 214 Charles St., Mt. Oliver Sta.
Ritchey, John B., 360 N. Lake Ave., Pasadena, Calif.
Rittenhouse, Harry H., Federal.
Robertson, John L., 1450 Columbus Ave.
Robinson, Charles I., 1407 Middle St., Sharpsburg.
Robinson, James W., 3600 Fifth Ave.
Robinson, Ralph V., 8111 Jenkins Arcade Bldg.
Robinson, Wilton H., 6017 Stanton Ave.
Rock, Norbet F., 2348 California Ave., N. S.
Rodgers, William H., 1421 Lincoln Ave.
Roe, John C., 4 North Ave., W.
Roose, Arthur E., 711 Linden Ave., East Pittsburgh.
Rosenbloom, Jacob, 5737 Forbes St.
Ross, William F., New Kensington (Westm. Co.).
Rowan, Charles, 218 Fisk St.
Rowland, Ivo E., Elizabeth.
Ruben, Jacob A., 5317 Fifth Ave.
Rubenstein, Louis G., 864 Braddock Ave., Braddock.
Rudolph, Franklin W., 3824 Brighton Rd.
Rugh, John B., 430 Second St., Pitcairn.
Russell, John McD., 5418 Penn Ave.
Ryall, Thomas M., 38 Wabash Ave.
Sable, Daniel E., 203 Nixon Bldg.
Sadowski, Leon, 2625 Penn Ave.
Sahm, Wm. K. T., Room 124, Union Station.
Sakarraphos, Stelios N., 4 Fernando St.
Saling, John P., 2320 Carson St., S. S.
Sandblad, Andrew G., 728 Sixteenth St., McKeesport.
Sandels, Christopher C., Westinghouse Bldg.
Sands, Robert M., 4300 Butler St.
Sanes, K. Isadore, Jenkins Bldg.
Sankey, Thomas M., 701 Trenton Ave., Wilkinsburg.
Schaefer, Chas. N., Jenkins Arcade Bldg.
Schatzman, Edward P., 710 Foreland St., N. S.
Scheffer, Carl J., 409 E. North Ave.
Schildecker, Charles B., Park Bldg.
Schill, Joseph J., 3709 Butler St.
Schlanger, Fred A., Wills Hosp., Eighteenth and Race Sts., Philadelphia.
Schleiter, Howard G., 5420 Stanton Ave.
Schlotbom, Max G., 2710 Penn Ave.
Schmid, Henri, Coraopolis.
Schofield, Charles, Bakerstown.
Schonfield, Moses, 1704 Carson St.
Schoyer, Geo. Shries, Highland Bldg., E. Liberty Sta.
Schrack, Frank M., 2417 Carson St.
Schwartz, Loraine L., 905 Keenan Bldg.
Scooley, A. Wiles, Box 105, Braddock.
Scott, Zaccheus R., Louisa and Semple Sts.
Seegman, Simon, Jenkins Arcade Bldg.
Seipel, John H., 3525 Forbes St.
Seville, David Walter, 7 Sprague Ave., Bellevue.
Shaffer, David H., Elizabeth.
Shaffer, Phineas J., 79 S. Thirteenth St.
Shaffer, P. T. Barnum, Elizabeth.
Shallcross, William G., Highland Bldg.
Shanor, Charles K., 333 Beaver St., Sewickley.
Shapiro, Abraham, 722 St. Clair St., N.
Shaw, Henry A., 2402 Carson St.
Shaw, James P., 211 Frick Bldg.
Shaw, William C., 909 Wylie Ave.
Shepard, Jackson B., 6449 Frankstown Ave.
Sherman, William O., Carnegie Bldg.
Sherrill, Alvan W., 5506 Ellsworth Ave.
Shillito, Nicholas G. L., Jenkins Arcade Bldg.
Sieber, Paul R., 935 Sheridan Ave.
Sigal, Harry M., 2139 Wylie Ave.
Sigman, Alfred S., Washington St., Bellevue.
Silsby, Frederick W., Creighton.
Silver, David, Bryant and Farragut Sts.
Simon, David L., 1208 Fifth Ave.
Simonton, Thomas G., 5412 Ellsworth Ave.
Simpson, Frank F., Jenkins Arcade Bldg.
Simpson, John Reid, Westinghouse Bldg.
Simpson, Sumner C., 350 S. Highland Ave.
Singley, John DeV., 812 N. Highland Ave.
Sloan, Edgar H., 7435 Church Ave., Ben Avon.
Slocum, Morris A., 378 Butler St., Etna.
Smith, Charles H., Arnold (Westmoreland Co.).
Smith, Harry M., 1342 Walnut St., McKeesport.
Smith, H. MacVicker, 401 Charles St., Mt. Oliver.
Smith, Jacob C., Tarentum.
Smith, Joseph B., 828 Braddock Ave., Braddock.
Smith, La Monier, 3102 Landis St.
Smith, Lawrence D., Pitcairn.
Smith, Louis N., 2014 Noble St., Swissvale.
Smith, Stanley S., 613 Jenkins Bldg.
Snedden, Alex. R., Boston.
Snitzer, Henry M., 1543 Center Ave.
Snowden, Roy Ross, Jenkins Arcade Bldg.
Snowwhite, Thos. H., 633 Braddock Ave., Braddock.
Snyder, Frank G., 226 N. Main St., Sharpsburg.
Snyder, Marchand, 261 McCargo St., New Kensington (Westmoreland Co.).
Snyder, William J. K., Avalon.
Soffel, August, 23 Shiloh St.
Sohn, Charles, 4902 Liberty Ave.
Speer, Harvey B., Coraopolis.
Spiro, Marcus, 101 Taggart St.
Stahlman, Thomas M., 1111 Westinghouse Bldg.
Stanton, Anna M., 1412 Fifth Ave.
Stanton, James N., 355 Atwood St.
Staufft, Orson T., 1438 Columbus Ave.

Steedle, Jos. G., 1037 Chartiers Ave., McKees Rocks.
Steele, Robert L., 606 Locust St., McKeesport.
Steffler, Samuel S., 5012 Penn Ave.
Steffy, John L., 111 Brookline Blvd.
Steim, Charles J., Highland Bldg.
Steim, Joseph M., New Kensington (Westm. Co.).
Stein, Carl H., 340 Southern Ave.
Steinmetz, Olive B., 8th and Ann Sts., Homestead.
Sterritt, William J., 381 College Ave., Beaver Falls (Beaver Co.).
Stevenson, Alex. M., Jenkins Arcade Bldg.
Stevenson, Ellerslie W., Jenkins Arcade Bldg.
Stevenson, James Wylie, McKeesport.
Stewart, Acheson, 905 Keenan Bldg.
Stewart, J. Boyd D., Wilson.
Stewart, Wylie J., 814 Fourth Ave., Coraopolis.
Stieren, Edward, Union Arcade Bldg., Fifth Ave. and Grant St.
Stillwagen, Charles A., Highland Bldg.
Stimson, George W., Jenkins Arcade Bldg.
Stone, William L., 5115 Jenkins Arcade Bldg.
Stoneman, Madison U., 101 Clarendon Ave., Crafton.
Stotler, Fulton R., 611 Penn Ave., Wilkinsburg.
Storer, Frank M., 821 Wood St., Wilkinsburg.
Stover, Miles E., 519 Allegheny Ave.
Straessley, Clarence M., 621 Washington St., N. S.
Straessley, Francis X., 621 Washington St., N. S.
Strickland, George W., 6266 Frankstown Ave.
Sturm, Samuel A., 5118 Jenkins Bldg.
Stybr, Charles J., 865 Lockhart St.
Stybr, Joseph, Bessemer Bldg.
Sumney, Frank F., Dravosburg.
Sunstein, Noah, 209½ Locust St., McKeesport.
Sutton, Edward Lincoln, Lincoln Ave., Bellevue.
Swanton, Robert V., 301 S. Atlantic Ave.
Swope, Lorenzo W., Park Bldg.
Taylor, Edytha E., 11 Crafton Ave., Crafton.
Taylor, Martin C., 415 Warrington Ave.
Taylor, Robert L., 4736 Friendship Ave.
Taylor, William V. M., McKeesport.
Terheyden, William A., 5000 Liberty Ave.
Thomas, Clarence M., 1136 Brownsville Road, Mt. Oliver Sta.
Thomas, Vernon D., Highland Bldg.
Thompson, Elmer J., 1300 Pennsylvania Ave.
Thompson, J. Calvin, 503 Union Ave., N. S.
Thompson, Lloyd L., 305 E. Eighth Ave., Homestead.
Thompson, William H., 1202 Monterey St.
Thoms, Joseph F., 1515 Lowrie St., N. S.
Thorne, John M., 4319 Schenley Farms Terrace.
Thunhurst, Wilford L., 1112 Swissvale Ave., Wilkinsburg.
Titus, Paul, Alder Court Apt.
Todd, Frank L., 130 Bellefield Ave.
Tomlinson, William, 606½ Penn Ave., Turtle Creek.
Trevaskis, Abraham, 508 Penn Ave., Turtle Creek.
Torrens, Adelbert E., 507 Perrysville Ave., West View.
Trevaskis, Albert R., 408 Bessemer Ave., E. Pittsburgh.
Tufts, Stewart W., Highland Bldg.
Turfley, George G., 1854 Center Ave.
Turnbull, Thomas, Jr., 835 Western Ave., N. S.
Turner, Hunter H., Jenkins Bldg.
Ungerman, Frank G., 409 Locust St., McKeesport.
Updegraff, Harry C., 2200 Brownsville Road, Mt. Oliver Sta.
Utley, Frederick B., 1126 Highland Bldg.
Van Horne, Thomas C., 6510 Frankstown Ave.
VanKirk, Herbert S., 209 Sixth Ave., McKeesport.
VanKirk, Theophilus R., McKeesport.
VanKirk, Vite E., Union Arcade Bldg., Fifth Ave and Grant St.
Vates, Charles W., Mt. Oliver Sta.
Vaux, Carey J., 526 Larimer Ave.
Vaux, David William, 4300 Butler St.
Vaux George H. 2163 Center Ave.
Wade, Francis H. Wadehurst, Allegheny.
Wagener, Carl K., 312 Hutchinson Ave., Swissvale.
Wagner, Albert A., 812 Cedar Ave.
Wakefield, John G., Wilkinsburg, R. D. 1.
Walker, Granville H., 54 N. Sprague St., Bellvue.
Walker, William E., 214 Sixth Ave., McKeesport.
Walker, William K., Westinghouse Bldg.
Wallace, James O., 7008 Jenkins Arcade Bldg.
Wallace William C., Ingram.
Wallis, Alfred W., 125 Hazelwood Ave.
Walls, E. Slifer, Alpine Apt. B, Ellsworth Ave.
Walter, Paul H., 229 Amber St.
Walters, DeForest E., 446 Atlantic Ave., McKeesport.
Walters, George W., 3222 Forbes St.
Walters, John, 316 Beaver St., Sewickley.
Walz, Frank J., Highland Bldg.
Watson, Charles M., 516 Federal St.
Watson William S., Jenkins Arcade Bldg.
Way, Edith Waldie, Westinghouse Bldg.
Weamer, John A., 411 Third Ave., Tarentum.
Wechsler, Benjamin B. 4943 Center Ave.
Wechsler, Lawrence, 1554 Center Ave.
Weil, Grover C., 4714 Fifth Ave.
Weill, Nathan J., Jenkins Arcade Bldg.
Weimer, Edgar S., 332 Lehigh Ave.
Weinberg, Max H., 2129 Center Ave.
Weiss, Edward A., Jenkins Bldg.
Weiss, Harry, Jenkins Bldg.
Weisser, Edward A., Empire Bldg.
Welch, John C., Bellevue.
Werder, Xavier O., Jenkins Bldg.
Wertheimer, Herbert G., 1218 Westinghouse Bldg.
Wesley, William H., 6101 Penn Ave.
Wessels, John L., 711 Sandusky St., N. S.
Westervelt, Henry C., 6101 Penn Ave.
Whitcraft, James H., 804 Wood St., Wilkinsburg.
White, Sidney G., Box 162, N. S.
Whitehead, Ira B., 1600 Baltimore Ave.
Whitfield, Finley K., 814 Braddock Ave., Braddock.
Wholey, Cornelius C., 4616 Bayard St.
Wiant, Meade, Frankstown and Homewood Aves.
Wible, Elmer E., Diamond Bank Bldg.
Wiggins, Samuel L., 224 Sixth Ave., McKeesport.
Wignall, Horace L. W., 821 Wylie Ave.
Wiley, Joseph C., 606 Wylie Ave., McKeesport.
Willetts, Ernest W., 5101 Liberty Ave.
Williams, Isadore, 655 Preble Ave.
Williams, John A., 206 W. Carson St.
Williams, Roger, 116 S. Sheridan Ave.
Williamson, Joseph H., Bessemer Bldg.
Wilson, John M., S. Highland and Baum Aves.
Wilson, John V., West Elizabeth.
Wilson, Leyden F., 1000 Fifth Ave., New Kensington (Westm. Co.).
Winter, William J., 1718 East St., N.S.
Winters, George R., 112 Cohasset St.
Wirtz, Charles Wilmer, 516 Madison Ave.
Wishart, Charles A., Bessemer Bldg.
Woefel, Herbert E., 340 Lincoln Ave., Bellevue.
Wohlwend, Frederick, Tarentum
Wolf, Jacob, Jenkins Bldg.
Wolfe, Charles H., McDevitt Pl. and Forbes St.
Wolff, Raymond A., 1000 Fifth Ave., New Kensington (Westm. Co.).
Wood, Benjamin B., 2118 Fifth Ave.
Woodburn, Wilton A., 7644 Frankstown Ave.
Woods, Edward B., 715 N. Highland Ave.
Woods, H. Robert, 600 Wylie Ave.
Woodward, Wm. M., 607 Fifth Ave., McKeesport.
Worrell, John W., 110 S. Fairmount Ave.
Wright, George J., 5018 Friendship Ave.
Wright, James H., 654 Maryland Ave., E. E.
Wuerthele, Herman W., 161 Greenfield Ave.
Wycoff, George R., 718 Broadway, McKees Rocks.
Wycoff, William A., 7211 Frankstown Ave.
Wymard, William H., 721 N. Homewood Ave.
Yorty, Valentine J., 7300 Monticello St.
Zabarenko, Samuel, 2624 Carson St.
Zeller, Albert T., McKeesport.

Zeok, John, 212 Eleventh St., Braddock.
Zieg, George A., 802 Cedar Ave.
Zinsser, Harry F., 5134 Butler St.
Zueblin, Ernest, Tuberculosis Sana., Cincinnati, Ohio.
Zugsmith, Edwin, 1014 Jenkins Arcade Bldg.
ZurHorst, Edward William, 1434 Fifth Ave.

ARMSTRONG COUNTY SOCIETY

(Organized March 28, 1876)

President...Howard M. Welch, Leechburg.
V. Pres.....Ellis C. Winters, Ford City.
Andrew Sedwick, Kittanning.
Sec., Treas.
and Rept..Jay B. F. Wyant, Kittanning.
Censors.....Joseph D. Orr, Leechburg, 5 yrs.
L. Dent Allison, Kittanning, 4 yrs.
Albert E. Bower, Ford City, 3 yrs.
Charles A. Rogers, Freeport, 2 yrs.
S. E. Ambrose, Rural Valley, 1 yr.
Committee on Public Policy and Legislation:
Thomas N. McKee, Kittanning.
Joseph D. Orr, Leechburg.
Charles A. Rogers, Freeport.
Prog. Com..Frederick C. Monks, Kittanning.
William J. Ralston, Freeport, R. D. 1.
J. B. F. Wyant, Kittanning.
Memb. Com.S. E. Ambrose, Rural Valley.
Albert E. Bower, Ford City.
Charles J. Jessop, Kittanning.
David H. Riffer, Leechburg.

Stated meetings at General Hospital, Kittanning, first Tuesday of each month. Election of officers in January.

MEMBERS (61)

Allison, James G., McGrann.
Allison, L. Dent, Kittanning.
Allison, Thomas M., Kittanning.
Ambler, Jesse E., Ford City.
Ambrose, Samuel E., Rural Valley.
Aye, Thomas L., Kelly Station.
Barton, Blain B., Adrian.
Bierer, J. William, Kittanning.
Bower, Albert E., Ford City.
Brown, J. M. E., Creighton (Alle. Co.).
Campbell, Jesse Wilbert, Elderton.
Campbell, Oren C., Ford City.
Clark, Omar T., Worthington.
Cooley, John M., Kittanning.
Cramer, George E., 1305 Middle St., Sharpsburg (Alle. Co.)
Deemar, John T., Kittanning, R.D. 1.
Deemar, Roscoe, Kittanning, R.D. 1.
Dunkle, John M., Worthington.
Fleming, Edward L., Dayton.
Giarth, David I., Ford City.
Griffith, Wilbert E., Iselin (Indiana Co.)
Heilman, Uriah O., Leechburg.
Henry, J. Thomas, Apollo.
Hileman, Frank W., Kittanning.
James, John A., Yatesboro.
Jessop, Charles J., Kittanning.
Jessop, Samuel A. S., Kittanning.
Keeler, Charles E., Elderton.
Kelly, James A., Whitesburg.
Kiser, John H., Kittanning.
Knight, George A., Kaylor.
Kroh, Laird F., Rural Valley.
Lawson, Eleanor J. Hetrick, Kittanning.
Longwell, Benjamin J., Seminole, R.D., New Bethlehem (Clarion Co.).
Lowery, John A., South Bend.
McCafferty, William H., Freeport.
McCain, Gilpin M., 210 East 64th St., New York City.
McKee, Thomas N., Kittanning.
McLaughlin, Charles M., Freeport.
Mead, Ralph K., Sagamore.
Monks, Frederick C., Kittanning.
Morrow, George S., Dayton.
Newcome, Thomas H., Templeton.
Orr, Joseph D., Leechburg.
Parks, Clarence C., Leechburg.
Powers, Henry K., New Kensington (Westm. Co.).
Quigley, James E., Adrian.
Ralston, Robert G., Cowansville.
Ralston, William J., Freeport, R.D. 1.
Riffer, David H., Leechburg.
Robinstein, Carl H., Ford City.
Rogers, Charles A., Freeport.
Sedwick, Andrew, Kittanning.
Skilton, Avery W., Cadogen, Kittanning.
Tarr, Robert F., Kittanning.
Thomas, David O., New Kensington (Westm. Co.).
Townsend, A. Howard, Apollo.
Van Giesen, Thomas L., Leechburg.
Welsh, Howard M., Leechburg.
Winters, Ellis C., Ford City.
Wyant, Jay B. F., Kittanning.

BEAVER COUNTY SOCIETY

(Organized Nov. 23, 1855.)

President...William C. Meanor, Beaver.
V. Pres.....Scudder H. Peirsol, Jr., Rochester.
Albert N. Mellott, Ambridge.
Sec.-Treas..Boyd B. Snodgrass, Rochester.
Reporter....Francis H. McCaskey, Freedom.
Censors.....Bert C. Painter, New Brighton, 3 yrs.
Theodore P. Simpson, Beaver Falls, 2 yrs.
Guy S. Shugert, Rochester, 1 yr.
Committee on Public Policy and Legislation:
Robert M. Patterson, Beaver Falls.
John A. Stevens, Woodlawn.

Stated meetings held in the Eagles Lodge Room, third floor, Butler and Jackson Building, Rochester, on the second Thursday of each month at 3:30 p. m. Election of officers in January.

MEMBERS (66)

Ague, John B., Beaver Falls.
Allen, John J., Monaca.
Arthur, Walter C., Ambridge.
Bernhardy, Harry W., Rochester.
Boal, G. Fay, Freedom.
Boal, George Y., Baden.
Boal, John H., Baden.
Boyd, George J., Beaver Falls.
Burns, Emmett S., Beaver Falls.
Campbell, Ernest W., Midland.
Cloak, Andrew B., Freedom.
Cornelius, Margaret I., Beaver.
Dawson, Robert B., Smith's Ferry.
Downie, Regina M., Beaver Falls.
Elliott, Washington F., Beaver Falls.
Fish, James C., Beaver Falls.
Forcey, Charles B., Ambridge.
Gilliland, J. Frank, Beaver Falls.
Grazier, Harry L., Woodlawn.
Grim, William S., Beaver Falls.
Heinrich, Howard H., Enon Valley (Lawrence Co.).
Hensell, Robert S., Glenmore Ave., Dormont (Allegheny Co.).
Herriott, Walter H., Freedom.
Jackson, John M., Beaver Falls.
Jones, Harry B., Woodlawn.
Lacy, Henry C., New Brighton.

Langfitt, William J., 3042 Preble Ave., Pittsburgh (Allegheny Co.).
Louthan, James S., Beaver Falls.
McCandless, Milton L., Rochester.
McCaskey, Francis H., Freedom.
McCormick, George L., Beaver Falls.
McGeorge, C. S., Ambridge.
McGogney, Charles B., Midland.
McKinley, Andrew S., Monaca.
McLaughlin, James W., Beaver Falls.
Mead, Harry B., New Brighton.
Meanor, William C., Beaver.
Mellon, George W., Woodlawn.
Mellott, Albert N., Ambridge.
Miller, John L., Aliquippa.
Miller, Leroy B., New Brighton.
Moore, Chalmers B., New Galilee.
Moore, Harry E., Ambridge.
Norton, Roy Roscoe, New Brighton.
Nye, Hiram W., Enon Valley (Lawrence Co.).
Painter, Bert C., New Brighton.
Parson, Russell C., Ambridge.
Patterson, Robert M., Beaver Falls.
Peirsol, Scudder H., Jr., Rochester.
Rose, Walter A., Rochester.
Sawyer, Benjamin C., Darlington.
Schley, Kate Taggart, Beaver Falls.
Scroggs, James, Beaver.
Shugert, Guy S., Rochester.
Simpson, Theodore P., Beaver Falls.
Snodgrass, Boyd B., Rochester.
Snodgrass, Bruce H., Beaver Falls.
Stevens, John A., Woodlawn.
Stevenson, John D., Aliquippa.
Strouss, Ulysses S., Beaver.
Sturgeon, Samuel D., New Galilee.
Townsend, Leroy S., Beaver Falls.
Treshler, Harry J., Midland.
Wickham, John J., Rochester.
Wilson, Fred B., Beaver.
Wilson, Jefferson H., Beaver.

BEDFORD COUNTY SOCIETY

(Organized July 29, 1904.)

President...William P. S. Henry, Everett.
V. Pres.....James F. Price, Six Mile Run.
Secretary...Harry I. Shoenthal, New Paris.
Reporter....Wilmot Ayres, Bedford.
Treasurer...Edmund L. Smith, Schellburg.
Censors.....Harry A. Shimer, Alum Bank.
Walter F. Enfield, Bedford.
Wilmot Ayres, Bedford.
William P. S. Henry, Everett.
Committee on Public Policy and Legislation:
Harry Shimer, Alum Bank.
William C. Miller State Health Dept., Harrisburg.
Benjamin F. Hunt, Clearville.

Stated meetings bimonthly in Bedford or in other places as may be determined by vote of the society. Election of officers in January.

members (25)

Anderson, J. C., Schellburg.
Ayres, Wilmot, Bedford.
Brant, Maurice Victor, Cairnbrook (Som. Co.).
Brumbaugh, Clarence S., Windber (Som. Co.).
Campbell, Frank S., Hopewell.
Cook, Thomas W., Osterburg.
Eaton, Paul, 5 Roselawn Terrace, Pittsburgh (Alle. Co.).
Enfield, Walter F., Bedford.
Evans, A. Hank, Saxton.
Fawcett, William E., Rainsburg.
Gensimore, Charles W., Bedford.
Hanks, Jason G., Everett.
Henry, William P. S., Everett.
Hill, Walter de la M., Everett.
Hunt, Benjamin F., Mechanicsburg (Cumb. Co.).
Lindsey, James Washington, Imler.
McKibbin, James M., Buck Valley (Fulton Co.).
Miller, Abram M., Hyndman.
Miller, William C., State Health Dept., Harrisburg (Dauphin Co.).
Nycum, William E., Everett.
Price, James F., Six Mile Run.
Rees, David T., Hyndman.
Shimer, Harry, Alum Bank.
Shoenthal, Harry I., New Paris.
Smith, Edmund L., Schellburg.

BERKS COUNTY SOCIETY

(Organized 1824.)

(Reading is the postoffice when street address only is given.)

President...Hiester Bucher, 142 S. Fifth St.
V. Pres.....F. G. Runyeon, 1390 Perkiomen Ave.
Addison M. Rothrock, 132 S. Ninth St.
Secretary...Charles P. Henry, 846 Center Ave.
Treasurer...Howard U. Miller, Mt. Penn, Reading.
Librarian...F. G. Runyeon, 1390 Perkiomen Ave.
Reporter....Clara Shetter-Keiser, 36 N. Tenth St.
Curator.....H. F. Rentschler, 228 N. Sixth St.
Censors.....Daniel Longaker, 344 N. Fifth St., 1 yr.
Israel Cleaver, 223 S. Fifth St., 2 yrs.
I. H. Hartman, 237 N. Fifth St., 3 yrs.
Trustees....S. Banks Taylor, 140 Oley St., 1 yr.
I. H. Hartman, 237 N. Fifth St., 2 yrs.
Harry F. Rentschler, 228 N. Sixth St., 3 yrs.
George W. Kehl, 418 N. Tenth St., 4 yrs.
Charles W. Bachman, 221 N. Sixth St., 5 yrs.

Stated meetings at Medical Hall, Reading, the second Tuesday of each month at 3 p. m. Election of officers in December.

members (112)

Alexander, Robert M., S. W. Cor. Sixth and Elm Sts.
Allen, H. Melvin, 422 Walnut St.
Ammarell, Winfield H., Birdsboro.
Bachman, Charles W., 221 N. Sixth St.
Bagenstose, Harry W., West Reading.
Bankes, Claude W., 212 N. Sixth St.
Bauscher, Abner H., Temple.
Becker, John N., 332 N. Ninth St.
Bertolet, John M., 1333 Perkiomen Ave.
Bertolet, Walter M., 1713 Center Ave.
Bertolet, William S., 233 N. Sixth St.
Bertolette, Daniel N., 127 S. Sixth St.
Borneman, John S., Boyertown.
Bower, John L., Broad St. Sta., P. R. R., Philadelphia.
Bowman, Paul N., Base Hosp., San Antonio, Tex.
Brunner, H. Philemon, 122 Oley St.
Bucher, Hiester, 142 S. Fifth St.
Burkholder, Samuel G., 613 Walnut St.
Cahn, Morris L., 551 N. Eleventh St.
Cleaver, Israel, 223 S. Fifth St.
Colletti, Ferdinando, 15 N. Fourth St.
DeLong, Eugene R., Geiger's Mills.
Dries, Charles L., Eshbach.
Dunkelberger, Nathaniel Z., Kutztown.
Fahrenbach, George, Bernville.
Feick, John F., 643 N. Ninth St.
Fisher, William E., 151 W. Buttonwood St.

Frankhauser, Fremont W., 38 S. Eighth St.
Gehris, Oscar T., Fleetwood.
Gerhard, James R., 540 Center Ave.
Gruver, Martin E., 247 W. Fifth St.
Hain, Ira J., 1119 N. Ninth St.
Harding, Ralph A., 209 W. Greenwich St.
Hartman, Irvin H., 237 N. Fifth St.
Hawman, Erle G., 113 N. Fifth St.
Hengst, Milton A., Birdsboro.
Henry, Charles P., 846 Center Ave.
Hertzog, C. Frank, Oley St.
Hetrich, George, Birdsboro.
High, Isaac B., Shillington.
Hill, Samuel S., Wernersville.
Horne, John, Womelsdorf.
Huebsch, Leo A., Hamburg.
Hunsberger, William E., Maiden Creek.
Huyett, M. Luther, 334 N. Fifth St.
Kauffman, John W., 814 N. Eleventh St.
Kehl, George W., 418 N. Tenth St.
Kieffer, Elmer C., 900 N. Fifth St.
Knoll, F. W., 943 N. Tenth St.
Krum, Octavia L., Wernersville.
Kurtz, Clarence M., 304 S. Fifth St.
Kurtz, J. Ellis, 22 S. Fifth St.
Kurtz, Samuel L., 412 S. Fifth St.
Lechner, LeRoy Y., Bechtelsville.
LeFevre, Rufus E., 138 S. Eighth St.
Leinbach, Howard Milton, 323 N. Fifth St.
Leiser, William, III, 336 N. Ninth St.
Lenker, Robert W., West Leesport.
Lerch, Charles E., Wyomissing.
Levan, George K., 300 S. Fifth St.
Light, Israel J. K., 350 N. Sixth St.
Livingood, John E., Womelsdorf.
Livingood, William W., Robesonia.
Long, William S., 322 N. Fifth St.
Longaker, Daniel, 344 N. Fifth St.
Loose, Charles G., 120 N. Fifth St.
Lytle, Frank P., Birdsboro.
Matternes, James G., Sinking Spring.
Meter, Edward G., 948 Penn St.
Miller, Howard U., Mt. Penn, Reading.
Muhlenberg, Hiester H., 34 S. Fifth St.
Nead, Daniel W., 816 N. Fifth St.
Newcomet, Henry I., 48 N. Fourth St.
Newcomet, Isaac W., Stouchsburg.
Orff, John Henry, Wyomissing.
Overholser, George W., 309 N. Ninth St.
Potteiger, George F., Hamburg.
Reeser, Howard S., 111 S. Fifth St.
Remsberg, Daniel E., Pa. R. R. Station.
Rentschler, Harry F., 228 N. Sixth St.
Rhoads, Thomas J. B., Boyertown.
Rhode, Homer J., 220 N. Sixth St.
Roland, Charles, 105 S. Fifth St.
Rothrock, Addison M., 132 S. Ninth St.
Runyeon, Frank G., 1390 Perkiomen Ave.
Saul, Henry W., Kutztown.
Schaeffer, Harry B., Shillington.
Schlappich, Charles E., Bernville.
Schmehl, Seymour T., 110 N. Ninth St.
Scholten, Ernest R., 431 Windsor St.
Shearer, Christopher H., 206 N. Fifth St.
Shearer, Wayne L., 101 W. Greenwich St.
Shenk, George R., 116 S. Ninth St.
Shetter-Keiser, Clara, 36 N. Tenth St.
Shoemaker, Ira G., 19 S. Ninth St.
Smith, Charles F., Topton.
Sondheim, Sidney J., 1044 N. Tenth St.
Stamm, Allison A., Mohnton.
Stites, Thomas H. A., State Sanatorium, Hamburg.
Stockler, Joseph, 228 N. Fifth St.
Taylor, S. Banks, 140 Oley St.
Wagner, Jesse L., 152 N. Sixth St.
Wagner, Levi F., 610 N. Tenth St.
Wenger, LeRoy J., 1108 N. Eleventh St.
Wenrich, George G., Wernersville.
Wenrich, John Adam, Wernersville.
Werley, Charles D., 317 S. Sixth St.
Wheeler, Lucia Anna, Wernersville.
Wickert, Victor W., 1009 Penn St.
Winston, Gilbert I., 320 N. Fifth St.
Womer, Frank, 216 N. Sixth St.
Ziegler, John George, U. S. S. San Diego, Pacific Sta., via San Francisco.

BLAIR COUNTY SOCIETY

(Organized July 25, 1848.)

(Altoona is the postoffice when street address only is given.)

President...Gerald D. Bliss, 1220 Thirteenth Ave.
V. Pres.....John D. Hogue, 1216 Twelfth Ave.
Sec.-Treas..Charles F. McBurney, 710 Ninth St.
Cor. Sec. and Rept...James S. Taylor, Altoona Trust Co. Bldg.
Censors.....W. Albert Nason, Roaring Spring, 1 yr.
Samuel L. McCarthy, 1331 Eighth Ave., 2 yrs.
James E. Smith, 410 Fourth St., 3 yrs.
Committee on Public Policy and Legislation:
Henry H. Brotherlin, Hollidaysburg.
W. Albert Nason, Roaring Spring.
James E. Smith, 410 Fourth St.
Exec. Com..Gerald D. Bliss, 1220 Thirteenth Ave.
Charles F. McBurney, 710 Ninth St.
Fred H. Bloomhardt, 1907 Eighth Ave.

Stated meetings held in Lincoln Trust Building, Altoona, the fourth Tuesday of every month, except September, in which month meeting is held on third Thursday at 3 p. m.

MEMBERS (87)

Alleman, George E., 2314 Broad Ave.
Allen, David E., 1325 Eighth Ave.
Baker, George E., Williamsburg.
Bliss, Gerald D., 1220 Thirteenth Ave.
Bloomhardt, Fred H., 1907 Eighth Ave.
Blose, Joseph U., 401 Howard Ave.
Bonebreak, John S., Martinsburg.
Bradin, Carey C., Tyrone.
Brotherlin, Henry H., Hollidaysburg.
Brubaker, John L., Juniata.
Brumbaugh, Arthur S., 1405 Tenth St.
Burket, Clair W., 523 Fourth St.
Confer, D. Clarence, Duncansville.
Crawford, James C., Orange, Calif.
Crawford, Luther Fleck, Tyrone.
Dandois, George F., Martinsburg.
Davies, Sarah M., 1307 Twelfth Ave.
Davis, Daniel W., Six Mile Run (Bedford Co.).
Deck, Roy, Hollidaysburg.
Delaney, Charles Walter, 1320 Ninth St.
Eldon, Roswell T., 1624 Eleventh St.
Findley, Joseph D., 802 Twelfth St.
Fox, Charles W., Roaring Spring.
Galbraith, John H., 308 Fourth Ave.
Glasgow, David Fulkerson, Tyrone.
Glover, Samuel P., 1118 Twelfth Ave.
Grounds, Wilbert L., Roaring Spring.
Haagen, David F., 923 Seventeenth St.
Haberacker, Eugene O., 2222 Seventh Ave.
Handwork, Andrew Jackson W., 1227 Twelfth Ave.
Hillis, Robert J., N.-W. Cor. Fourth Ave. and Sixth St., Juniata.
Hogue, Davis A., 922 Seventeenth St.
Hogue, John D., 1216 Twelfth Ave.
Howell, William H., 1123 Twelfth Ave.
Hull, Logan E., 1214 Thirteenth Ave.
Johnston, Charles O., Claysburg.

Jones, Henry O., 57 Altoona Trust Bldg.
Kauffman, David, 1119 Twelfth Ave.
Kech, Augustus Sheridan, 1209 Sixteenth St.
Levengood, Brooklyn B., Bellwood.
Long, Charles, Salemville (Bedford Co.).
Loudon, Edward W., 4001 Fifth Ave.
Lowrie, William L., Tyrone.
McBurney, Charles F., 710 Ninth St.
McCarthy, Harry, 1411 Twelfth Ave.
McCarthy, Samuel L., 1331 Eighth Ave.
McCarthy, S. Lloyd, Jr., 1331 Eighth Ave.
McKee, Lewis E., 1103 Thirteenth Ave.
Menninger, William H., Juniata.
Metzgar, Carl H., 1424 Twelfth Ave.
Miller, Edwin B., 1903 Seventh Ave.
Miller, Homer C., Altoona.
Montgomery, Chalmers, 1218½ Twelfth Ave.
Morrow, Emory H., 1418 Twelfth Ave.
Morrow, Hugh, Williamsburg.
Morrow, Thomas M., 941 Seventeenth St.
Morrow, William H., Bellwood.
Musser, Walter Scott, Tyrone.
Nason, John B., Tyrone.
Nason, W. Albert, Roaring Spring.
Neff, Elmer E., 813 Eighth Ave.
Noss, Charles W., 1118 Seventh Ave.
Oburn, Albert S., 701 Seventh Ave.
Pershing, Paul Frederick, 1203 Seventh Ave.
Pownall, Howard W., Tyrone.
Reith, Emil, Central Trust Bldg.
Robinson, William H., Roaring Spring.
Robison, Clair E., 930 Seventeenth St.
Shaffer, Orr H., 1116 Twelfth Ave.
Sheedy, John M., 1114 Fifteenth St.
Shoemaker, Frank R., Hollidaysburg.
Shultz, Charles Lytle, 508 Second St., Juniata.
Smith, James E., 410 Fourth St.
Snyder, Claude Edwin, 831 Sixth Ave.
Snyder, John R. T., 404 Howard Ave.
Sommer, Henry J., Jr., Blair Co. Hosp., Hollidaysburg.
Spanogle, Albert L., 1226 Seventh Ave.
Stayer, Andrew S., Nat. Soldiers Home, Wis.
Stonebreaker, Samuel L., Tyrone.
Tate, George F., 1201-3 Thirteenth Ave.
Taylor, James S., Altoona Trust Co. Bldg.
Thomas, Herbert C., Altoona.
Vissel, Julius T., Roaring Spring.
Walton, Louis Stockton, 53 Central Trust Bldg.
Watson, James G., Juniata.
Whittaker, Ralph R., Williamsburg.
Wilson, Thomas F., Bellwood.

BRADFORD COUNTY SOCIETY

(Organized Sept. 20, 1849.)

President...Alpheus E. Dann, Canton.
V. Pres.....Mahlon B. Ballard, Troy.
Daniel L. Bevan, Leroy.
Sec.-Rept...George H. B. Terry, Wyalusing.
Treasurer...Cyrus Lee Stevens, Athens.
Censors.....Arthur Lloyd Parks, Rome, 3 yrs.
Howard C. Down, Wysox, 2 yrs.
George H. B. Terry, Wyalusing, 1 yr.
Exec. Com..Alpheus E. Dann, Canton.
George H. B. Terry, Wyalusing.
Charles M. Woodburn, Towanda.
Committee on Public Policy and Legislation:
T. Ben Johnson, Jr., Towanda.
Cyrus Lee Stevens, Athens.
Arthur L. Parks, Rome.

Stated meetings the second Tuesday of each month at 1:30 p. m., in the Court House, Towanda, unless otherwise ordered. Election of officers in January.

MEMBERS (49)

Badger, Samuel W., Athens.
Ballard, Mahlon B., Troy.
Barker, Perley N., Troy.
Bevan, Daniel L., Leroy.
Boyer, George E., Troy.
Campbell, William R., East Smithfield.
Carpenter, Philo S., Troy.
Chamberlain, John W., Wyalusing.
Conklin, Gustavus, Orwell.
Coon, C. Melvin, Athens.
Dann, Alpheus E., Canton.
Davison, Willis T., Canton.
Down, Howard C., Wysox.
Durga, Gideon W., LeRaysville.
Everitt, John E., Sayre.
Gemmill, James R., Canton.
Glover, Henry A., Nichols, N. Y.
Gustin, Grant H., Sylvania.
Guthrie, Donald, Sayre.
Haines, Carlyle N., Sayre.
Haines, Charles A., Sayre.
Haines, John F., Monroeton.
Harshberger, W. Frank, New Albany.
Hawk, George W., Sayre.
Higgins, John M., Sayre.
Inslee, Fayette Lane, LeRaysville.
Johnson, Thomas B., Towanda.
Johnson, T. Ben, Jr., Towanda.
Kingsley, Harry O., Mansfield (Tioga Co.).
Lee, John C., Rummerfield.
Means, Charles S., Towanda.
Mingos, Jay D., Laquin.
Parks, Arthur Lloyd, Rome.
Parsons, James W., Canton.
Phillips, John W., Troy.
Pratt, C. Manville, Towanda.
Pratt, D. Leonard, Towanda.
Reed, Charles, Towanda.
Rice, Frederick W., Sayre.
Rinebold, Nathan A., Athens.
Rockwell, Oscar H., Monroeton.
Schwartz, Philip H., Towanda.
Stevens, Cyrus Lee, Athens.
Sumner, Porter H., Camptown.
Terry, George H. B., Wyalusing.
Thompson, Ferdinand A., Towanda, R. D. 4.
Tuttle, Homer, Sayre.
Weinberger, Nelson S., Sayre.
Woodburn, Charles M., Towanda.

BUCKS COUNTY SOCIETY

(Organized June 14, 1848. Reorganized October 31, 1862.)

President...Levi S. Walton, Jenkintown.
V. Pres.....William R. Cooper, Point Pleasant.
John A. Weierbach, Quakertown.
Sec., Treas.
and Rept..Anthony F. Myers, Blooming Glen.
Censors.....Howard Pursell, Bristol.
George M. Grim, Ottsville.
William R. Cooper, Point Pleasant.
Committee on Public Policy and Legislation:
William J. Wilkinson, Sellersville.
J. Morris Carter, Eddington.
Otto H. Strouse, Perkasie.

Stated meetings at 12 m. the second Wednesday in February at Newtown; in May at Bristol; in August at Quakertown; in November at Doylestown. Election in November.

MEMBERS (83)

Abbott, Charles Shewell, Bristol.
Abbott, Joseph de Benneville, Bristol.
Althouse, Albert C., Dublin.
Bassett, Henry Linn, Yardley.
Biehn, Andrew C., Quakertown.
Boring, H. Bruce, Richlandtown.
Brewer, George M., Plumsteadville.
Brown, Walter H., 280 Glenwood Ave., Bridgeport. Ct.
Burkhardt, Charles N., Chalfont.
Carrell, John B., Hatboro (Montgomery Co.).
Carter, J. Morris, Eddington.
Collins, James, Bristol.
Cooper, William R., Point Pleasant.
Cope, F. Gurney, Upper Black Eddy.
Crewitt, John A., Newtown.
Dill, Mahlon B., Perkasie.
Erdman, William S., Buckingham.
Erdman, Wilson S., Quakertown.
Fell, John A., Doylestown.
Fleckenstine, Horace, Newportville.
Fox, George T., Bristol.
Fretz, Alfred E., Sellersville.
Fretz, Clayton D., Sellersville.
Fretz, Oliver H., Quakertown.
Fretz, S. Edward, Box 15, Whitestone, L. I., N. Y. C.
Grim, George M., Ottsville.
Grim, Herman C., Cressman.
Groff, James E., Doylestown.
Groom, Evan J., Bristol.
Harper, James Wesley, Forest Grove.
Hellyer, Howard A., Penn's Park.
Huff, Irwin F., Sellersville.
Hunt, James Edgar, Salladasburg (Lycom. Co.).
Huntsman, Edwin S., Hulmeville.
Imhoff, Wm. H. M., Willow Grove (Montg. Co.).
Jacobs, John N., Lansdale (Montg. Co.).
Johnson, Erwin T., Hilltown.
Klenk, James M., Tullytown.
LeCompte, William C., Bristol.
Lehman, Frank, Bristol.
Leinbach, Samuel A., Quakertown.
Ley, Charles L., Wycombe.
Lovett, Henry, Langhorne.
McIlhatten, Samuel Patterson, Ivyland.
Magill, Roscoe C., Newhope.
Marsteller, Victor K., Spinnerstown.
Moyer, William G., Quakertown.
Murphy, Felix A., Doylestown.
Myers, Anthony F., Blooming Glen.
Nonamaker, Noah S., Bedminster.
O'Connell, Austin, Bucksville.
Osborne, Richard H. G., Morrisville.
Ott, John J., Pleasant Valley.
Parker, George A., Southampton.
Parker, George A., Jr., Newtown.
Plymire, I. Swartz, Doylestown.
Pownall, Elmer E., Richboro.
Pursell, Howard, Bristol.
Rich, Edward Y., Marietta (Lancaster Co.).
Richards, James N., Fallsington.
Ridge, Samuel LeRoy, Langhorne.
Scott, J. Ernest, Newhope.
Smith, Charles B., Newtown.
Smith, Edwin L., Hatboro (Montgomery Co.).
Strouse, Otto H., Perkasie.
Swartzlander, Frank B., Doylestown.
Swartzlander, Joseph R., Doylestown.
Sweeney, John J., Doylestown.
Wagner, J. Frederick, Bristol.
Walter, Charles A., Glenside (Montgomery Co.).
Walter, Joseph B., Solebury.
Walter, J. Willis, Point Pleasant.
Walter, Terry, Langhorne.
Walton, Levi S., Jenkintown (Montgomery Co.).
Wareham, Arthur, Morrisville.
Weaver, Milton E., Benjamin.
Weierbach, John A., Quakertown.
Weisel, William F., Quakertown.
Wetmore, Stephen S. P., Morrisville.
Wilkinson, William J., Sellersville.
Williams, Neri B., Perkasie.
Wilson, Abram S., Bristol.
Winder, Lawrence J., Andalusia.

BUTLER COUNTY SOCIETY

(Organized Jan. 3, 1867.)

President...William J. Grossman, Butler.
V. Pres.....Joseph D. Purvis, 140 E. Jefferson St., Butler.
Egbert T. Simpson. East Butler.
Sec.-Rept...Alfred H. Ziegler, Butler.
Treasurer...M. Edward Headland, 216 Center Ave., Butler.
Librarian...J. Clinton Atwell, Butler.
Censors.....Ephraim E. Campbell, Butler.
James L. Christie, Conoquenessing.
Robert J. Grossman, Butler.
Committee on Public Policy and Legislation:
J. Clinton Atwell, Butler.
Elgie L. Wasson, Butler.
Albert Holman, 121 W. Clay St., Butler.
Exec. Com..William J. Grossman, Butler.
Alfred H. Ziegler, Butler.
Joseph D. Purvis, Butler.

Stated meetings in University Club Rooms, Butler, the second Tuesday in each month at 8:30 p. m. Election of officers in January.

MEMBERS (59)

Allison, Robert L., Eau Claire.
Atwell, J. Clinton, Butler.
Beatty, George M., Chicora.
Boyle, James C., Butler.
Brandberg, Guy A., 358 Center Ave., Butler.
Campbell, Ephraim E., Butler.
Campbell, John S., Portersville.
Campbell, Willard B., Harrisville.
Campbell, William B., Prospect.
Christie, James L., Conoquenessing.
Clark, William B., Butler.
Cowden, John V., Butler.
Daubenspeck, Charles F., 226 N. Main St., Butler.
deLong, Francis E., Boyers.
DeWolfe, Charles L., Chicora.
Doane, L. Leo, Butler.
Dombart, Nicholas A., Evans City.
Edmonds, Andrew J., Bruin.
Elrick, Robert B., Petrolia.
Fiedler, Daniel W., Harmony.
Fulton, Samuel R., Harrisville.
Greer, Robert B., Butler.
Grossman, Robert J., Butler.
Grossman, William J., Butler.
Hazlett, Leslie R., Box 643, Butler.
Headland, M. Edward, 216 Center Ave., Butler.
Heilman, Arthur M., Butler.
Hockenberry, Harvey D., West Sunbury.
Hockenberry, W. Rush, Slippery Rock.
Holman, Albert, 121 W. Clay St., Butler.
Hughes, Eugene Martin, 223 S. Main St., Butler.
Hunter, Charles W., West Sunbury.
Ketterer, Clarence Henry, 348 S. Main St., Butler.
Lasher, Weston W., Saxonburg.
Lowry, Walter T., Prospect.
McCall, Willis A., 215 S. Main St., Butler.
McCandless, Dwight L., East Diamond St., Butler.
Maxwell, Thomas McCullough, Butler.
Mershon, Edwin U. B., Saxonburg.

Purvis, Joseph D., 140 E. Jefferson St., Butler.
Ramsey, Byron L., 129½ S. Main St., Butler.
Robb, Claude A., 129 S. Main St., Butler.
St. Clair, Harry P., 213 S. Main St., Butler.
St. Clair, Mary P. Brooke, Butler.
Scott, William McC., Marwood.
Simpson, Egbert T., East Butler.
Stepp, Lawrence H., Valencia, R. D. 2.
Storer, Eugene, West Winfield.
Straube, Arthur H., Chicora.
Thomas, Victor F., Evans City.
Thompson, Raymond A., Butler.
Walker, Ralph, 8 S. New St., Bethlehem (Northampton Co.).
Wasson, Elgie L., Butler.
Whittaker, Arthur E., Zelienople.
Williams, Olin A., Butler.
Wilson, Harry M., Evans City.
Wilson, Harry R., Callery.
Young, Clinton M., Queens Junction.
Ziegler, Alfred Henry, Butler.

CAMBRIA COUNTY SOCIETY

(Organized 1852. Reorganized 1868 and 1882.)

President...James Jefferson, Johnstown.

V. Pres.....Louis H. Mayer, Jr., Johnstown.
Harvey M. Griffith, Conemaugh.

Sec.-Rept...Frank G. Scharmann, Johnstown.

Treasurer...Harry M. Stewart, Johnstown Trust Bldg., Johnstown.

Censors.....Henson F. Tomb, Johnstown.
Charles E. Hayes, Johnstown.
Robert C. Davis, 413 Locust St., Johnstown.

Committee on Public Policy and Legislation:
George W. Wagoner, Johnstown.

Stated meetings every second Thursday at 3 p. m., at G. A. R. Hall, Johnstown. Officers elected in December and installed in January.

MEMBERS (108)

Akers, Andrew Franklin, Gallitzin.
Anderson, Guy R., Barnesboro.
Bancroft, John Walter, 503 Swenk Bldg., Johnstown.
Barker, Olin G. A., 804 Johnstown Trust Bldg., Johnstown.
Barnett, Geo. Watson, 435 Lincoln St., Johnstown.
Barr, John W., Nanty Glo.
Basil, Arthur A., Johnstown.
Beatty, Arthur W., Colver.
Bennett, Harry J., Ebensburg.
Bishop, Frank, Ebensburg.
Blair, Walter Allen, Spangler.
Bowers, Benjamin F., St. Benedict.
Bowman, Kent A., 213 Market St., Johnstown.
Boyer, Edwin C., 213 Market St., Johnstown.
Brallier, Stanley A. E., Conemaugh.
Braude, Bennett A., Johnstown.
Brinham, Alfred W., Scalp Level.
Burkhart, Ephraim J., Johnstown.
Cartin, Harry J., Johnstown.
Cleaver, Philip R., Johnstown Trust Bldg., Johnstown.
Comerer, Jacob A., Trust Co. Bldg., Bethlehem (Northampton Co.).
Davis, Robert C., 413 Locust St., Johnstown.
Davison, Seward R., Johnstown.
Dickinson, E. Pope, St. Michael.
Difenderfer, Herman G., Beaverdale.
Donlan, Francis A., Lilly.
Dunsmore, Albert F., Barnesboro.
Ealy, Edwin T., Barnesboro.
Ferguson, Frank U., Gallitzin.
Fichtner, Albon S., Johnstown.
Fichtner, Allan Ellsworth, First St., Conemaugh.
Fisher, Daniel E., Needmore (Fulton Co.).
Fitzgerald, Clyde A., South Fork.
Griffith, Harvey M., Conemaugh.
Grove, William E., Johnstown.
Gurley, Lycurgus M., 406 Main St., Johnstown.
Haight, William D., Johnstown.
Hammer, Chas. M., 602 Central Ave., Johnstown.
Hannan, Charles E., Johnstown.
Harris, Clarence M., 604 Johnstown Trust Bldg., Johnstown.
Hay, George, Johnstown.
Hays, Charles Elliott, Johnstown.
Healey, Bernard C., Barnesboro.
Helfrick, T. Orlando, Spangler.
Helsel, William L., Scalp Level.
Hill, Homer L., Johnstown.
Hornick, Leo W., Johnstown.
Horowitz, Max, Johnstown.
Jefferson, James, Johnstown.
Johnston, William M., Emeigh.
Jones, Emlyn, Johnstown.
Jones, Leighton Wherry, Johnstown.
Keiper, Jacob D., Johnstown.
Kessler, William C., Ehrenfeld.
Koontz, James S., Johnstown.
Kress, Frederick C., Walnut St., Johnstown.
Kring, Sylvester S., Johnstown.
Leech, A. Wallace, Beaverdale.
Livingston, Frank J., Salix.
Longwell, Benton Elkins, Johnstown.
Lowman, John Bodine, Johnstown.
Lubken, William Oscar, Johnstown.
Lynch, James A., Cresson.
McAneny, John B., Johnstown.
McAnulty, Arthur H., Nanty Glo.
Matthews, William E., Johnstown.
Maucher, Joseph V., Carrolltown.
Mayer, Louis H., Johnstown.
Mayer, Louis H., Jr., 228 Market St., Johnstown.
Mendenhall, Thomas E., Johnstown.
Meyer, Joseph J., 803 Franklin St., Johnstown.
Millhoff, Clarence B., Johnstown.
Miltenberger, Arthur, Johnstown, R. D. 4.
Mulvehill, Vincent J., Carrolltown.
Murray, John A., Patton.
Murray, Valesius A., Patton.
Nickel, Harry G., Johnstown.
Palmer, Robert M., Johnstown.
Pardoe, Edward, South Fork.
Penrod, Harry Hartzell, Johnstown.
Porch, George B., Johnstown.
Porch, Latshaw Lynn, 221 Broad St., Johnstown.
Prideaux, Harry T., Cresson.
Prideaux, William A., Expedit.
Pringle, William N., Johnstown.
Ray, Daniel Pattee, 906 First National Bank Bldg., Johnstown.
Raymond, Walter C., Lilly.
Rice, Daniel S., Hastings.
Sagerson, John Leo, Johnstown.
Sagerson, Robert J., 643 Locust St., Johnstown.
Salus, Henry W., 420 Franklin St., Johnstown.
Schill, Francis, Johnstown.
Scharmann, Frank G., Johnstown.
Schilling, Francis M., Box 662, Johnstown.
Shank, Orlando J., Windber (Somerset Co.).
Sloan, Ira E., Johnstown.
Smith, Augustus Edwin, South Fork.
Smith, Elizabeth Cisney, South Fork.
Somerville, Harry, Chest Springs.
Spicher, Clarence C., 566 Park Ave., Johnstown.
Stewart, Harry Myrrel, Johnstown Trust Bldg., Johnstown.
Tomb, Henson F., Johnstown.
Turnbull, William G., Cresson.
VanWert, John Irving, Patton.

Wagoner, George W., Johnstown.
Wheeling, William S., Windber (Somerset Co.).
Woodruff, John B., Johnstown.
Yearick, George I., Lilly.

CARBON COUNTY SOCIETY

(Organized April 20, 1881.)

President...Ira E. Freyman, Weatherly.
V. Pres.....Harold E. Hersh, Palmerton.
David F. Dreibelbis, Lehighton.
Sec.-Treas..Jacob A. Trexler, Lehighton.
Reporter....James B. Tweedle, Weatherly.
Censors....Wilson P. Long, Weatherly.
Charles T. Horn, Lehighton.
Exec. Com..Ira E. Freyman, Weatherly.
Jacob A. Trexler, Lehighton.
Calvin J. Balliet, Lehighton.
Committee on Public Policy and Legislation:
Jacob G. Zern, Lehighton.
John W. Luther, Palmerton.

Stated meetings are held at Mauch Chunk and Lehighton the third Wednesday, at 3 P. M., of January, March, May, July, September and November. Election of officers in November.

MEMBERS (29)

Armstrong, Alexander, White Haven (Luz. Co.).
Balliet, Calvin J. Lehighton.
Behler, Jacob H., Nesquehoning.
Bellas, J. J., Lansford.
Buckley, Thomas Vincent, Girardville (Schuyl. Co.).
Dreibelbis, David F., Lehighton.
Druckenmiller, Stanley F., Lansford.
Eshleman, Edward F., Palmerton.
Freyman, Ira E., Weatherly.
Haberman, Charles P., Weissport.
Henry, John K., Mauch Chunk.
Hersh, Harold E., Palmerton.
Hoffmeier, Howard T., Mauch Chunk.
Horn, Charles T., Lehighton.
Kingsbury, Oscar J., Nesquehoning.
Kistler, Clinton J., Lehighton.
Kistler, Edwin H., Lansford.
Kistler, Robert N., Lansford.
Kistler, Willoughby K., Lehighton.
Long, Wilson P., Weatherly.
Luther, John W., Palmerton.
Ruch, Charles F., Summit Hill.
Sittler, Albert M., Bowmanstown.
Sittler, Warren C., Lehighton, R. D. 1.
Trexler, Jacob A., Lehighton.
Tweedle, James B., Weatherly.
Waaser, John E., East Mauch Chunk.
Young, J. Harrington, Lansford.
Zern, Jacob G., Lehighton.

CENTER COUNTY SOCIETY

(Organized April 4, 1876.)

President...Lincoln E. Kidder, Boalsburg.
V. Pres.....Grover C. Glenn, State College.
Peter H. Dale, State College.
Sec.-Treas..Marvin W. Reed, Bellefonte.
Reporter....James L. Seibert, Bellefonte.
Censors.....Harvey S. Braucht, Spring Mills.
William U. Irwin, Fleming.
David Dale, Bellefonte.
Committee on Public Policy and Legislation:
David Dale, Bellefonte.
James L. Seibert, Bellefonte.
Scott M. Huff, 5 E. High St., Bellefonte.

Stated meetings the second Wednesday of each month at 10:30 a. m., in the Court House, Bellefonte. Election of officers in January.

MEMBERS (28)

Allison, John R. G., Millheim.
Braucht, Harvey S., Spring Mills.
Brockerhoff, Joseph M., Bellefonte.
Dale, David, Bellefonte.
Dale, Peter Hoffer, State College.
Dorworth, Edward Samuel, Bellefonte.
Forsythe, Warren E., Wilson, N. C.
Foster, John V., State College.
Frank, George S., Millheim.
Glenn, Grover Cleveland, State College.
Glenn, William S., State College.
Hardenbergh, John A., Millheim.
Harris, Edward H., Snow Shoe.
Hayes, Robert G. H., Bellefonte.
Huff, Scott M., 5 E. High St., Bellefonte.
Irwin, William U., Fleming.
Kidder, Lincoln E., Boalsburg.
Kurtz, Walter J., Howard.
Locke, Melvin J., Bellefonte.
McEntire, O. W., Howard.
Musser, C. Sumner, Aaronsburg.
Reed, Marvin W., Bellefonte.
Russell, Edward A., Fleming.
Seibert, James L., Bellefonte.
Thompson, James A., Port Matilda.
Wolfe, Lewis E., New Berlin (Union Co.).
Woods, George H., Pine Grove Mills.
Young, Robert J., Snow Shoe.

CHESTER COUNTY SOCIETY

(Organized Feb. 5, 1828)

President...Percy C. Hoskins, West Chester.
V. Pres.....Charles H. Stone, Coatesville.
Sec.-Treas..Joseph Scattergood, West Chester.
Reporter....Henry Pleasants, Jr., West Chester.
Censors.....S. Horace Scott, Coatesville, 3 years.
Edward Kerr, East Downington, 2 yrs.
Charles E. Woodward, West Chester, 1 yr.
Exec. Com...Percy C. Hoskins, West Chester.
H. Y. Pennell, East Downingtown.
Joseph Scattergood, West Chester.
Prog. Com..Charles E. Woodward, West Chester.
Henry Pleasants, Jr., West Chester.
William T. Sharpless, West Chester.

Stated meetings at 2:30 p. m. on the third Tuesday of each month at West Chester. Election of officers in January.

MEMBERS (84)

Aaronoff, Joseph, New London.
Aiken, James, Berwyn.
Aiken, Thomas Gerald, Berwyn.
Baker, Fred L., Atglen.
Baker, Jane R., West Chester.
Barry, Chester LeRoy, Oxford.
Betts, William W., Chadds Ford (Del. Co.).
Brower, Charles J., Spring City.
Bullock, Charles C., West Chester.
Burkartmaier, John H., Avondale.
Carey, Robert B., Glenlock.
Cassel, Wilbur F., Spring City.
Catanach, Notman G., West Chester.
Cressman, George S., Pughtown.
Davis, John H., Coatesville.
Dietrich, George E., Coatesville.
Ehlinger, Clyde E., West Chester.
Emack, Frank D., Phoenixville.

Evans, John K., Malvern.
Ewing, William B., West Grove.
Farrell, John A., West Chester.
Gifford, U. Grant, Avondale.
Graves, Everett A., Coatesville.
Hamilton, William L., Malvern.
Heagey, Henry F., Cochranville.
Hemphill, Joseph, Jr., West Chester.
Holcomb, Guy T., Oxford.
Hollingsworth, I. Pemberton P., 402 N. Church St., West Chester.
Hollister, Frederick N., Embreeville.
Hoskins, Percy C., West Chester.
Howard, Robert W., Atglen.
Hughes, Robert C., Paoli.
Hutchison, D. Edgar, East Downingtown.
Jacobs, Francis B., West Chester.
Kane, Bayard, West Chester.
Kerr, Edward, East Downingtown.
Keylor, Josiah B., Cochranville.
Klevan, Oscar Jesse, Unionville.
Kurtz, Clarence S., Malvern.
Laird, Joseph P., Devon.
Leebron, Jacob D., Avondale.
Linn, G. Wilds, Malvern.
MaGraw, George T., Avondale.
Margolies, Michael, Coatesville.
Maxwell, James Rea, Parkesburg.
Merryman, John W., Kennett Square.
Moore, Lawrence C., Chatham.
Murphy, Walter A., Parkesburg.
Patrick, Elwood, West Chester.
Patrick, Jesse K., West Chester.
Pennell, Howard Y., East Downingtown.
Perdue, William R., West Chester, R. D. 5.
Pleasants, Henry, Jr., West Chester.
Rea, Samuel L., Oxford.
Reeder, Jeremiah V., 224 Bridge St., Phoenixville.
Rettew, David P., Coatesville.
Richmond, Thomas S., Guthriesville.
Roberts, Charles J., Berwyn.
Rothrock, Harry A., West Chester.
Rothrock, Joseph T., West Chester.
Roulon, Samuel A., Jr., Phoenixville.
Scattergood, Joseph, West Chester.
Scott, J. Clifford, Oakbourne.
Scott, S. Horace, Coatesville.
Sharpless, William T., West Chester.
Smith, Harry T., St. Peters.
Smith, Mary H., Parkesburg.
Smith, Willis N., Phoenixville.
Spangler, John L., Devon.
Spratt, George R., Coatesville.
Stone, Charles H., Coatesville.
Sweigler, Jacob J., Kennett Square.
Taylor, Jackson, Coatesville.
Taylor, James T., Pomeroy.
Walker, James B., Mendenhall.
Warren, B. Harry, West Chester.
Wells, Frank H., Chester Springs.
Wells, John R., Chester Springs.
West, Frederick B., Kemblesville.
Wherry, C. Norwood, Chatham.
Williams, Della Hannah, Berwyn.
Wilson, Samuel C., Collamer.
Woodward, Charles E., West Chester.
Woodward, W. Wellington, West Chester.

CLARION COUNTY SOCIETY

(Organized May 5, 1865.)

President... Sylvester J. Lackey, Limestone.
V. Pres..... Charles V. Hepler, Hawthorn.
Secretary... Franklin P. Phillips, Clarion.
Treasurer... Benjamin G. Wilson, Clarion.
Reporter.... John F. Summerville, Monroe.
Censors..... Albert J. Hepler, New Bethlehem.
George B. Woods, Curllsville.

Stated meetings at selected places the fourth Tuesday in April, July and October. Annual meeting at Clarion the fourth Tuesday of January.

MEMBERS (31)

Booth, Fred K., Fairmount City.
Brown, Jas. A., New Kensington (Westm. Co.).
Brown, Sloan A., Coraopolis (Alle. Co.).
Clover, Cuvier L., Knox.
Dillenbeck, Charles O., Strattonville.
Fitzgerald, John M., Clarion.
Greer, Robert J., East Brady.
Hepler, Albert J., New Bethlehem.
Hepler, Charles Verne, Hawthorn.
Hess, Henry N., Fryburg.
Hoffman, Charles W., Rimersburg.
Hoover, Albert M., Parkers Landing (Arms. Co.).
Huston, Charles C., Knox.
Kahle, Dana, Knox.
Kahle, Harold H., Leeper.
Keeler, Richard S., St. Petersburg.
Lackey, Sylvester J., Limestone.
McAninch, David Lewis, Lamartine.
Miller, John B., Sligo.
Phillips, Franklin Pierce, Clarion.
Rimer, John T., Clarion.
Ross, Charles C., Clarion.
Sayers, Clement E., Hawthorn.
Shumaker, Edgar K., New Bethlehem.
Shumaker, Philip W., New Bethlehem.
Stute, John E., Parkers Landing (Arms. Co.).
Summerville, Harvey Bruce, Rimersburg.
Summerville, John F., Monroe.
Walker, Byron P., West Monterey.
Wilson, Benjamin G., Clarion.
Woods, George B., Curllsville.

CLEARFIELD COUNTY SOCIETY

(Organized Sept. 27, 1864. Chartered May 8, 1894)

President... William S. Piper, 210 N. 2d St., Clearfield.
V. Pres..... W. E. Reiley, Cherry St., Clearfield.
George B. Shivery, Woodland.
Secretary... J. M. Quigley, 922 Dorey St., Clearfield.
Ed.-Rept.... A. D. Cowdrick, 215 Reed St., Clearfield.
Treasurer... W. O. Wilson, 210 N. 2d St., Clearfield.
Censors..... George E. Mauk, Woodland, 3 yrs.
G. B. Yeaney, Clearfield, 2 yrs.
George B. Kirk, Kylertown, 1 yr.
Committee on Public Policy and Legislation:
W. B. Henderson, Philipsburg.
C. E. McGirk, Philipsburg.
E. L. Jones, Philipsburg.
Exec. Com... William S. Piper, Clearfield.
John M. Quigley, Clearfield.
Lever F. Stewart, Clearfield.

Stated meetings the second Wednesday of each month at various places in the county. Election of officers in January.

MEMBERS (67)

Ake, Nicholas F. K., Curwensville.
Andrews, Warren W., Philipsburg (Center Co.).
Baily, Samuel D., Clearfield.
Bennett, Francis Guerney, St. Marys (Elk Co.).
Blair, H. Albert, Curwensville.
Brockbank, John I., Dubois.
Browne, William C., Burnside.
Buckingham, Hugh W., Mahaffey.
Cornely, James M., Madera.

Cowdrick, Arthur D., 215 Reed St., Clearfield.
Dale, John, Philipsburg (Center Co.).
Dale, Wallace H., Houtzdale.
Derick, Alma Read, Bellwood (Blair Co.).
Dinger, Michael C., Morrisdale.
Elliott, Charles Bruce, Box 88, Coalport.
Erhard, Elmer S., New Millport.
Fiscus, James H., Boardman.
Flegal, Irwin Scott, Karthaus.
Frantz, J. Paul, 108 N. 2d St., Clearfield.
Gann, George Willard, Dubois.
Ginter, James E., McEwen Bldg., Dubois.
Goheen, George B., Coalport.
Gordon, John W., 206 Locust St., Clearfield.
Harman, L. Cooper, Philipsburg (Center Co.).
Harper, Francis Watts, Irvona.
Harshberger, Joseph W., Mahaffey.
Hayes, Senes E., Byrnedale (Elk Co.).
Henderson, James L., Osceola Mills.
Henderson, Wm. B., Philipsburg (Center Co.).
Hoke, Bradley H., Coalport.
Houck, Earl E., Dubois.
Howe, Fred C., Munson.
Hurd, Michael E., Mahaffey.
Jackson, Robert, Osceola Mills.
Jones, Evan L., Philipsburg (Center Co.).
Kirk, George B., Kylertown.
Lewis, Homer H., Surveyor.
Lynn, Austin C., Osceola Mills.
McDonald, John J., Nesquehoning (Carbon Co.).
McGirk, Charles E., Philipsburg (Center Co.).
McNaul, C. Gleni, 521 5th Ave., Juniata (Blair Co.).
Martsolf, Stanley Miller, Westover.
Mauk, George Edmund, Woodland.
Miller, Summerfield J., Madera.
Patterson, Floyd G., Box 411, Dubois.
Piper, William S., 210 N. Second St., Clearfield.
Pollom, James I., 17 W Long Ave., Dubois.
Quigley, John M., 922 Dorey St., Clearfield.
Quinn, Luther W., Box 273, Dubois.
Reiley, William E., First and Market Sts., Clearfield.
Ricketts, George Allen, Smithmill.
Rowles, J. Frank, Mahaffey.
Rowles, Lewis C., 307 Market St., Clearfield.
Shivery, George B., Woodland.
Smathers, Wilson J., 6-8 S. Main St., Dubois.
Stewart, Lever F., 108 N. 2d St., Clearfield.
Stewart, Samuel C., 108 N. Second St., Clearfield.
Sullivan, John C., Dubois.
Thompson, Harry H., Philipsburg (Center Co.).
Thorpe, Walter P., Winburne.
Waterworth, Samuel J., 2d and Cherry Sts., Clearfield.
White, Inman H., Houtzdale.
Williams, Richard Lloyd, Houtzdale.
Wilson, Ward O., 210 N. Second St., Clearfield.
Woodside, Harry A., Lumber City.
Woodside, Horatio L., Bigler.
Yeaney, Gillespie B., 104 S. Second St., Clearfield.

CLINTON COUNTY SOCIETY

(Organized 1866. Reorganized 1883.)

President...Saylor J. McGhee, 214 W. Main St., Lock Haven.

V. Pres.....Joseph M. Corson, Chatham Run.

Sec., Treas.
and Rept..Robert B. Watson, Lock Haven.

Censors.....Luther M. Holloway, Salona.
Francis P. Ball, Lock Haven.
William E. Welliver, Lock Haven.

Committee on Public Policy and Legislation:
Charles L. Fullmer, Renovo.
Theodore E. Teah, Renovo.

Stated meetings in Lock Haven Hospital the fourth Friday of each month, at 8 P. M. Election of officers in January.

MEMBERS (24)

Ball, Francis P., Lock Haven.
Corson, Joseph M., Chatham Run.
Critchfield, John B., Lock Haven.
Dumm, John M., Mackeyville.
Dwyer, Francis P., Renovo.
Fullmer, Charles L., Renovo.
Gillespie, William P., 951 Twenty-Fifth St., Altoona (Blair Co.).
Green, George D., Lock Haven.
Holloway, Luther M., Salona.
Kirk, Clair B., Mill Hall.
Liken, Loyal L., Flemington.
Lubrecht, James Louis, Lock Haven.
McGhee, Saylor J., 214 W. Main St., Lock Haven
Mahr, Irving O., Loganton.
Mervine, Graydon D., Bitumen.
Moorehouse, William G., 23 S. West End Ave., Lancaster (Lanc. Co.).
Painter, Allen B., Mill Hall.
Roach, Thomas E., Renovo.
Rosser, Orin H., Renovo.
Shoemaker, William J., Lock Haven.
Teah, Theodore E., Renovo.
Tibbins, Perry McDowell, Beech Creek.
Watson, Robert B., Lock Haven.
Welliver, William E., Lock Haven.

COLUMBIA COUNTY SOCIETY

(Organized June 31, 1858.)

President...Charles K. Albertson, Fairmount Springs.

V. Pres.....George F. Drum, Mifflinville.
Edward L. Davis, Berwick.

Sec., Treas.
and Rept..Luther B. Kline, Catawissa.

Librarian...James R. Montgomery, Jr., Bloomsburg.

Censors.....John T. Macdonald, Bloomsburg, 3 yrs.
James R. Montgomery, Sr., Bloomsburg, 2 yrs.
J. Elmer Shuman, Bloomsburg, 1 yr.
Henry Bierman, Bloomsburg, 4 yrs.

Committee on Public Policy and Legislation:
Ralph E. Miller, Bloomsburg.
John W. Bruner, Bloomsburg.
Ambrose Shuman, Catawissa.

Stated meetings at Bloomsburg second Thursday of March, June, September and December; at Berwick second Thursday in February, May, August and November; at Catawissa second Thursday in January, April, July and October. Election of officers in December.

MEMBERS (44)

Albertson, Chas. K., Fairmount Springs (Luz. Co.).
Alleman, Emanuel A., Berwick.
Altmiller, Charles F., Bloomsburg.
Arment, Samuel B., Bloomsburg.
Bierman, Henry, 38 W. Fourth St., Bloomsburg.
Bowman, John H., Berwick.
Brobst, Jacob R., Bloomsburg.
Brown, J. Jordan, Bloomsburg.
Bruner, John W., Bloomsburg.
Carl, Allen Vincent, Numidia.
Christian, Howard S., Millville.
Clark, Frank R., Berwick.
Cohen, Joseph, Berwick.
Davis, Edward L., Berwick.
Drum, George F., Mifflinville.
Follmer, George Elmer, Orangeville.
Gardner, Benjamin Franklin, Bloomsburg.

Gemmell, John Michael, Millville.
Glenn, Edwin A., Berwick.
Gordner, Jesse W., Jerseytown.
Harter, Theodore C., Bloomsburg.
Hensyl, William C., Berwick.
Hess, Delbert M., Rohrsburg.
Hess, J. Bruce, Benton.
John, J. Stacey, Bloomsburg.
Kline, Luther B., Catawissa.
Lazarus, J. Sanderson, Bloomsburg.
Macdonald, John T., 213 5th St., Bloomsburg.
Miller, Ralph E., Bloomsburg.
Montgomery, James R., Jr., Bloomsburg.
Montgomery, James R., Sr., Bloomsburg.
Patterson, Isaac E., Benton.
Pfahler, J. Fred, Berwick.
Robbins, Clifton Z., Bloomsburg.
Sharpless, Benjamin F., Catawissa.
Shuman, Ambrose, Catawissa.
Shuman, J. Elmer, Bloomsburg.
Steck, Charles T., Berwick.
Vance, William T., Bloomsburg, R.D. 6.
Vastine, J. Marion, Catawissa.
Warntz, Ralph E., Nescopeck (Luzerne Co.).
Wintersteen, John C., Numidia.
Wolfe, Isaac R., Espy.
Yost, Charles B., Bloomsburg.

CRAWFORD COUNTY SOCIETY

(Organized 1867.)

President...Glennis E. Humphrey, Cambridge Springs.
V. Pres.....Arne Wilbur Clouse, Geneva.
George D. Thomas, Meadville.
Sec.-Treas.
and Rept....Cornelius C. Laffer, Meadville.
Censors.....Samuel J. Dickey, Conneautville, 1 year.
Oliver H. Jackson, Meadville, 2 years.
J. Russell Mosier, Meadville, 3 years.
Committee on Public Policy and Legislation:
R. Bruce Gamble, Meadville.
Edwin E. Brophy, Meadville.
Harry L. Brush, Conneaut Lake.
Prog. Com..Glennis E. Humphrey, Cambridge Springs.
William E. Hyskell, Meadville.
Oliver H. Jackson, Meadville.

Stated meetings the first Wednesday of each month, except July, at 1:30 p. m. in the Court House, Meadville. Election of officers in January.

MEMBERS (46)

Axtell, John L., Cochranton.
Best, Margaret Blanche, Meadville.
Brophy, Edwin E., Meadville.
Brush, Harry L., Conneaut Lake.
Carpenter, Meade C., Linesville.
Clark, Robert W., Vanango.
Clawson, Frank A., Meadville.
Clouse, Arne Wilbur, Geneva.
Daniels, Henry M., Woodcock.
Dickey, Samuel J., Conneautville.
Eiler, V. Burton, 210 E. Main St., Titusville.
Ellison, George W., Townville.
Ferer, Charles K., Meadville.
Gamble, R. Bruce, Meadville.
Gamble, William M., Little Cooley.
Greenfield, Robert N., Penn Line.
Hamaker, Winters D., Meadville.
Hazen, Sylvester F., Hartstown.
Hayward, George Ernest, Meadville.
Hildred, Herbert Howard, Titusville.
Hill, Clarence C., Meadville.
Humphrey, Glennis E., Cambridge Springs.
Hyskell, William E., Meadville.
Jackson, Oliver H., Meadville.
Laffer, Cornelius C., Meadville.
Lewis, Frank L., Atlantic.
Little, Theodore A., Corry (Erie Co.).
Logan, James A., Cambridge Springs.
Logan, James Clark, Titusville.
McCune, Fred K., Girard (Erie Co.).
McFate, J. Charles, Meadville.
Mock, David C., Cambridge Springs.
Mosier, J. Russell, Meadville.
Nisbet, Frederick L., Meadville.
Quay, William H., Jr., Townville.
Roberts, John K., Meadville.
Rumsey, Frank M., Conneautville.
Shaffer, William Walter, Meadville.
Skelton, William B., Meadville.
Smith, Rodney S., Saegerstown.
Snodgrass, David G., Meadville.
Thomas, George D., Meadville.
Thompson, Charles Wesley, Meadville.
Walker, Herman H., Linesville.
Walker, James N., Linesville.
Williams, Clyde, L., Harmonsburg.

CUMBERLAND COUNTY SOCIETY

(Organized July 17, 1866)

President...Elmer A. Hudson, Carlisle.
V. Pres.....George L. Zimmerman, Carlisle.
Sec.-Rept...Calvin R. Rickenbaugh, Carlisle.
Treasurer...Jacob C. Kisner, Carlisle.
Censors.....Samuel E. Mowery, Mechanicsburg.
S. Dana Sutliff, Shippensburg.
Selden S. Cowell, Huntsdale.
Committee on Public Policy and Legislation:
Edward R. Plank, Carlisle.
R. McMurran Shepler, Carlisle.

Stated meetings second Tuesday of January, April, July and October; the January meeting at Carlisle; the place of the other meetings to be determined by vote of the society or on invitation. Election of officers in January.

MEMBERS (34)

Allen, Americus R., Carlisle.
Bashore, Harvey B., West Fairview.
Bowman, John W., Lemoyne.
Brown, Samuel G. A., Shippensburg.
Cadwallader, Seth I., West Fairview.
Cowell, Selden Sylvester, Huntsdale.
Dougherty, Milton M., Mechanicsburg.
Etter, H. B., Shippensburg.
Fralic, Harry B., Mt. Holly Springs.
Hershner, Newton W., Mechanicsburg.
Hudson, Elmer A., Carlisle.
Irwin, George G., Mount Holly Springs.
Kisner, Jacob C., Carlisle.
Koons, Philip R., Mechanicsburg.
Lawton, Henry C., Camp Hill.
Lee, Hildegard Langsdorf, Carlisle.
Lefever, Enos K., Boiling Springs.
Longsdorf, Harold H., Dickinson.
McBride, Thomas S., Shippensburg.
Meily, Harry S., Carlisle.
Mowery, Samuel E., Mechanicsburg.
Peters, William E., Carlisle.
Plank, Edward R., Carlisle.
Preston, Thomas Walbank, Carlisle, R. D. 1.
Rickenbaugh, Calvin R., Carlisle.
Ruch, William S., Carlisle.
Shepler, R. McMurran, Carlisle.
Shoemaker, Ferdinand, U. S. Indian Service, Washington, D. C.
Smith, Henry Albert, Mechanicsburg.
Spangler, Jacob B., Mechanicsburg.

Sutliff, S. Dana, Shippensburg.
Van Camp, David W., Plainfield.
Wagoner, Parker W., Carlisle.
Zimmerman, George L., Carlisle.

DAUPHIN COUNTY SOCIETY

(Organized 1868.)

(Harrisburg is the postoffice when street address only is given.)

President...J. Edward Dickinson, 228 N. Second St.
V. Pres.....H. Hershey Farnsler, 1438 Market St.
Sec. and
Treasurer...Jesse L. Lenker, 402 N. Second St.
Reporter....Alfred P. Isenberg, 413 Market St.
Trustees....William T. Douglass, 1634 Derry St.
George L. Brown, Fort Hunter.
Frederick W. Coover, 223 Pine St.
Censors.....Samuel N. Traver, Ch., 128 Locust St., 1 yr.
Harvey F. Smith, 130 State St., 2 yrs.
David S. Funk, 300 N. Second St., 3 yrs.
Committee on Public Policy and Legislation:
Thomas S. Blair, 403 N. Second St.
Charles S. Rebuck, 410 N. Third St.
Earle R. Whipple, 241 Pine St., Steelton.
Martin L. Hershey, Hershey.
Herbert F. Gross, 1412 N. Second St.

Regular meetings are held at 8:30 p. m. on the first Tuesday of every month except July and August, at the Harrisburg Academy of Medicine Building, 319 N. Second St., Library and reading room same place. Board of Governors meets last Tuesday of each month at 8:30 p. m. Election of officers in January. The Dauphin Medical Academician issued first of month.

MEMBERS (149)

Arnold, John Loy, 1509 Market St.
Baker, William C., Hummelstown.
Batdorf, Claude Wellington, 1622 N. Third St.
Batt, Wilmer R., 2138 N. Second St.
Bauder, George W., 1223 N. Second St.
Bishop, William Thomas, 211 Pine St.
Blair, Thomas S., 403 N. Second St.
Bowman, Thomas E., 1541 State St.
Brown, George L., Fort Hunter.
Bryner, John H., Bowmansdale (Cumberland Co.).
Coble, Aaron C., Dauphin.
Cochran, John C., St. Marys (Elk Co.).
Cocklin, Charles C., 126 Walnut St.
Coover, Carson, 223 Pine St.
Coover, Frederick W., 223 Pine St.
Crampton, Charles H., 600 Forster St.
Culp, John F., 410 N. Third St.
Dailey, Gilbert L., 713 N. Third St.
Dailey, William C., 714 S. Second St., Steelton.
Dapp, Gustave A., 1818 N. Third St.
Darlington, Emerson E., 2025 N. Sixth St.
Deckard, Park A., 709 N. Third St.
Deckard, Percy E., 413 Market St.
DeVenney, John C., 1115 N. Second St.
Dickinson, J. Edward, 228 N. Second St.
Douglas, Henry Rhea, 1800 Market St.
Douglass, William T., 1634 Derry St.
Earnest, Samuel F., Hummelstown.
Eisenhart, Harry P., 1122 N. Second St.
Ellenberger, John Wesley, 922 N. Third St.
Emrich, Marion W., 1426 Market St.
Evans, William P., Middletown.
Everhart, Edgar S., LeMoyne (Cumberland Co.).
Exley, Maude C., 112 State St.
Fager, John H., Jr., 406 N. Third St.
Fager, V. Hummel, 410 N. Second St.
Farnsler, H. Hershey, 1438 Market St.
Flowers, Claude J. B., 1609 Market St.
Frasier, Lester W., 715 N. Third St.
Fritchey, Charles A., 902 N. Third St.
Funk, David S., 300 N. Second St.
Garfinkle, B. Milton, 1219 N. Second St.
George, Henry William, Middletown.
Goldman, Louis C., 710 N. Sixth St.
Goodman, Charlotte E., State Hospital.
Graber, Leon K., 926 N. Third St.
Gross, Herbert F., 1412 N. Second St.
Hamilton, Hugh, 315 Walnut St.
Hart, Charles V., 226 S. Second St.
Hassler, Samuel F., 500 N. Second St.
Hazen, Merl V., 211 Locust St.
Hershey, Martin L., Hershey.
Hetrick, David Joseph, 54 N. Thirteenth St.
Hileman, Joseph B., 413 Market St.
Holmes, Robert E., Eighteenth and State Sts.
Hottenstein, D. Edgar, Millersburg.
Hull, Howard Lane, Camp Hill (Cumberland Co.).
Isenberg, Alfred P., 413 Market St.
James, William T., 1900 N. Sixth St.
Jauss, Christian E., 1323 N. Sixth St.
Jeffers, Benjamin B., 36 N. Front St., Steelton.
Keene, Charles E. L., 1849 Berryhill St.
Keiter, Ira A., Wiconisco.
Kiefer, Walter E., 1221 Seneca St., Buffalo, N. Y.
Kilgore, Frank D., 2011 N. Sixth St.
Klase, Harry E., 1706 Market St.
Kunkel, George B., 118 Locust St.
Laverty, DeWitt C., Middletown.
Laverty, George L., 404 N. Third St.
Lawson, Edward Kirby, Penbrook.
Lenker, Jesse L., 402 N. Second St.
McAlister, John B., 234 N. Third St.
McGowan, Hiram, 236 State St.
MacMullen, John W., 1432 Walnut St.
Manning, Charles J., 1519 N. Sixth St.
Middleton, William J., 101 N. Second St., Steelton.
Miller, David I., 1839 N. Sixth St.
Miller, J. Harvey, 19 N. Fourth St.
Mish, George F., Middletown.
Moffatt, Ralph E., 219 N. Second St.
Moffitt, George R., 200 Pine St.
Mullowney, John J. Paxtang.
Myers, Hewett C., 232 S. Second St., Steelton.
Newman, Oscar A., 617 Race St.
Nicodemus, Edwin A., 1439 Derry St.
Nissley, Martin L., Hummelstown.
Oenslager, John, Jr., 711 N. Third St.
Orth, Henry L., State Hospital.
Oxley, James E. T., Swab Bldg., 13th and Market Sts.
Page, Arthur L., 1315 Derry St.
Park, John Walter, 38 N. Second St.
Peters, Jacob M., 195 S. Front St., Steelton.
Phillips, Clarence R., 1646 N. Third St.
Plank, John R., 106 N. Front St., Steelton.
Putt, Maurice O., Oberlin.
Rahter, J. Howard, 324 N. Second St.
Raunick, John M. J., 212 Hamilton St.
Rebuck, Charles S., 410 N. Third St.
Reckord, Frank F. D., 220 Kelkes St.
Rickert, Charles M., Box 316, Millersburg.
Ridgway, Richard Frederick L., Pouch A., Penn. State Hospital.
Ritchie, Melanchton M., 36 S. Thirteenth St.
Ritzman, Allen Z., 812 N. Sixth St.
Romberger, Floyd T., Elizabethville.
Russell, W. Stewart, 242 Main St., Steelton.
Saul, Charles H., 30 Locust St., Steelton.
Schaeffer, Uriah R., Hummelstown.
Schminky, Gurney M., Gratz.
Seibert, William H., 31 S. Front St., Steelton.
Shaffer, Harry A., Williamstown.
Shaffer, Joseph Wright, Elizabethville.
Shearer, Alfred L., 808 N. Sixth St.

Shenk, Frank L., Linglestown.
Shepler, Norman Bruce, 711 N. Third St.
Sherger, John A., 1809 N. Sixth St.
Shope, Jacob W., 32 S. Thirteenth St.
Shull, William M., Hummelstown.
Shumaker, Luther M., 2102 N. Sixth St.
Smith, B. Frank, 1601 Market St.
Smith, Charles H., Linglestown.
Smith, Frederick C., Halifax.
Smith, Harvey F., 130 State St.
Snyder, Charles R., Marysville (Perry Co.).
Stauffer, Charles C., 1926 Green St.
Stees, Fannie Ross, c/o B. F. Goodrich Co., Akron, O.
Stevens, John C., 240 S. Thirteenth St.
Stine, Harvey A., Sixteenth and Berryhill Sts.
Stites, George M., Williamstown.
Stull, George B., 217 Woodbine St.
Sullivan, Charles M., 1439 Market St.
Swiler, Robert D., 1331 Derry St.
Taylor, Louise H., 1800 N. Third St.
Traver, David B., 145 S. Front St., Steelton.
Traver, Samuel N., 128 Locust St.
Treiman, George A., 721 N. Sixth St.
Trullinger, Charles I., 2022 N. Sixth St.
Ulrich, Marion, 139 Center St., Millersburg.
Walmer, E. LeRue, 112 N. Thirteenth St.
Walter, Henry B., 1317 N. Third St.
Weirick, Ernest Carl, Enola (Cumberland Co.).
West, William H., 1801 Green St.
Whipple, Earle Rogers, 241 Pine St., Steelton.
Widder, George H., 1244 Derry St.
Wiener, Hyman R., 234 State St.
Wintersteen, Grace, State Hospital.
Wolford, Martin L., 328 Chestnut St.
Wright, William E., 206 State St.
Zimmerman, George A., 1407 Market St.
Zimmerman, J. Landis, Hershey.

DELAWARE COUNTY SOCIETY

(Organized May 30, 1850.)

President...Harry M. Armitage, Chester.
V. Pres.....George V. Janvier, Lansdowne.
C. Irvin Stiteler, Box 32, Chester.
Sec.-Treas..Adrian V. B. Orr, Chester.
Reporter....Walter E. Egbert, Chester.
Librarian...Charles B. Shortlidge, Lima.
Censors.....J. Harvey Fronfield, Media, 1 yr.
Katharine Ulrich, Chester, 2 yrs.
Daniel J. Monihan, Chester, 3 yrs.
Committee on Public Policy and Legislation:
Hiram M. Hiller, Chester.
Adam J. Simpson, Chester.
J. Harvey Fronfield, Media.
Exec. Com..Harry M. Armitage, Chester.
Adrian V. B. Orr, Chester.
Robert Kilduffe, Jr., Chester.

Stated meetings the third Thursday of each month at 3:30 P. M., at Chester Hospital unless otherwise directed. Election of officers in January.

MEMBERS (85)

Armitage, George L., Jr., Chester.
Armitage, Harry M., Chester.
Arnold, Clifford H., 301 W. Seventh St., Chester.
Baker, Francis N., Media.
Bartleson, Henry C., Lansdowne.
Bing, Edward W., Chester.
Boice, Ervrit S., Moores.
Brown, Ellen E., Chester.
Bryant, F. Otis, Chester.
Bullock, Edwin C., Upland.
Campbell, Ethan A., Chester.
Corson, Susan Rogers, Lansdowne.
Crist, John O., 319 E. Broad St., Chester.
Cross, George H., Chester.
Crothers, George F., Marcus Hook.
Crothers, Samuel Ross, Chester.
Dalton, David, Sharon Hill.
Darlington, Horace, Concordville.
Dick, H. Lenox H., Darby.
Dickeson, Morton P., Media.
Donahoo, Harry C., Chester.
Dooling, Henry C., Norwood.
Dunn, Louis S., Chester.
Easby, Alice Rogers, Media.
Egbert, Walter E., Chester.
Emery, Walter V., Chester.
Evans, Fred H., Chester.
Evans, William B., Chester.
Evans, William Knowles, Chester.
Eynon, John Schofield, Chester.
Forwood, Jonathan Larkin, Chester.
Fronfield, J. Harvey, Media.
Gallagher, Harry, Glenolden.
Gottschalk, Leon, Marcus Hook.
Gray, Stoddard P., Chester.
Hammond, William, Glenolden.
Harvey, E. Marshall, Media.
Hiller, Hiram M., Chester.
Hitchens, Arthur Parker, Glenolden.
Hoskins, John, 2407 W. Third St., Chester.
Howell, Elizabeth W., Chester.
Hunlock, Fred S., Collingdale.
Janvier, George Victor, Lansdowne.
Jefferis, Daniel W., Chester.
Johnston, Frank E., Moores.
Kalbach, I. Irwin, Glen Riddle.
Keating, Peter McCall, Wawa.
Kilduffe, Robert, Jr., Chester.
Landry, Walter A., 809 Madison St., Chester.
LaShelle, Charles L., Lenni Mills.
Lehman, William F., Chester.
Lithgow, William D., Chester.
Loughead, Raymond B., 2216 W. Third St., Chester.
Lyons, J. Chalmers, Marcus Hook.
Maison, Robert S., Chester.
Monihan, Daniel J., Chester.
Morton, Alexander R., Morton.
Neufeld, Maurice A., Chester.
Nothnagle, Frank R., Chester.
Orr, Adrian V. B., Chester.
Parsons, Isaac I., Media.
Pike, Perry Covington, Media.
Pyle, Jerome L., Glen Mills.
Raiman, William A., Swarthmore.
Reynolds, Victor M., Darby.
Roberts, James E., Lansdowne.
Roxby, John Byers, Swarthmore.
Schoff, Charles H., Media.
Sherman, Jeannette H., Ridley Park.
Shortlidge, Charles B., Lima.
Sickel, George B., 702 Sproul St., Chester.
Simpson, Adam J., Chester.
Smith, Norman D., Rutledge.
Stanton, Herbert C., Clifton Heights.
Starbuck, J. Clinton, Media.
Stellwagen, Thomas C., Media.
Stiteler, C. Irvin, Box 32, Chester.
Taylor, H. Furness, Ridley Park.
Trimble, Samuel, Lima.
Ulrich, Katharine, Chester.
Webster, George C., Jr., Chester.
Weidner, Frances, Morningside Drive, New York City
White, Amy E., Chester.
Wolfe, A. Chester, Ridley Park.
Wood, J. William, Chester.

ELK COUNTY SOCIETY

(Organized 1881)

President...Henry H. Smith, Johnsonburg.
V. Pres.....Clarence G. Wilson, St. Marys.
Sec.-Rept...Jacob K. LeVan, St. Marys.
Treasurer...Michael M. Rankin, Ridgway.
Censors.....Russell P. Heilman, Emporium, 3 yrs.
Alfred Mullhaupt, St. Marys, 2 yrs.
John C. McAllister, Ridgway, 1 yr.

Committee on Public Policy and Legislation:
John C. McAllister, Ridgway.
Samuel G. Logan, Ridgway.
Clarence G. Wilson, St. Marys.

Stated meetings by appointment the second Thursday of each month at Johnsonburg, Ridgway, St. Marys or Emporium. Election of officers in January. Meetings at Ridgway and St. Marys at 1 p. m., at Johnsonburg at 7:30 p. m. Emporium and Wilcox have at least one meeting during the year.

MEMBERS (21)

Barratt, Stanley, Wilcox.
Beale, Bertram A., Dubois (Clearfield Co.).
Bush, Walter H., Emporium (Cameron Co.).
Earley, Francis G., Ridgway.
Flynn, James G., Ridgway.
Heilman, Russell P., Emporium (Cameron Co.).
Hutchison, George M., Dagus Mines.
LeVan, Jacob K., St. Marys.
Logan, Samuel G., Ridgway.
McAllister, John Craig, Ridgway.
Müllhaupt, Alfred, St. Marys.
Palmer, William R., Johnsonburg.
Rankin, Michael M., Ridgway.
Russ, Eben J., St. Marys.
Rutherford, James E., Ridgway.
Sharp, Eugene B., Johnsonburg.
Shaw, Walter C., Ridgway.
Smith, Henry H., Johnsonburg.
Straessley, Edward Charles, Elbon.
Warnick, John W., Johnsonburg.
Wilson, Clarence G., St. Marys.

ERIE COUNTY SOCIETY

(Reorganized June 25, 1895.)

(Erie is the postoffice when street address only is given.)

President...James H. Montgomery, 234 W. Sixth St.
V. Pres.....George S. Dickinson, 140 W. Eighth St.
Edward Cranch, 813 Sassafras St.
Secretary...Maxwell Lick, 714 Sassafras St.
Reporter....T. M. M. Flynn, 156 E. Sixth St.
Treasurer...Hugh M. Moorhead, 801 French St.
Librarian...Fred E. Ross, 154 W. Eighth St.
Censors.....Homer E. Griswold, 116 W. 8th St., 3 yrs.
Elmer G. Weibel, 125 W. 8th St., 2 yrs.
Wm. B. Washabaugh, 920 E. 21st St., 1 yr.

Committee on Public Policy and Legislation:
David H. Strickland, 153 W. Seventh St.
George W. Schlindwein, 138 W. Ninth St.
Wallace R. Hunter, 804 Peach St.
David V. Reinoehl, .Eighth & French Sts.
Chester H. McCallum, 219 W. Eighth St.

Stated meetings in the Library Building, Erie, the first Tuesday of each month, at 8:30 P. M. Election of officers in January.

MEMBERS (115)

Ackerman, John, 134 West Seventh St.
Barkey, Peter, 130 West Ninth St.
Barrett, George T., 341 East Tenth St.
Barrett, Martin C., 734 West Eighth St.
Beck, Frank William, Girard.
Bednarkiewicz, Ignatius A., 620 E. Twelfth St.
Belding, John Eastman, 330 W. Ninth St.
Bell, John J., 110 West Ninth St.
Boughton, Guy C., 810 Peach St.
Cardot, Cassius M., 315 East Eighth St.
Chaffee, Orel N., 820 Sassafras St.
Chidester, Charles B., 219 W. Eighteenth St.
Cranch, A. Girard, c/o General Electric Co.
Cranch, Edward, 813 Sassafras St.
Croop, J. Elmer, 628 East Sixth St.
Darrow, John Allison, 359 East Sixth St.
Dasher, J. Howard, 114 E. Sixth St.
Dennis, David N., 221 West Ninth St.
Dennis, Edward, 221 West Ninth St.
De Tuerck, John K., 261 East Eighth St.
Dickinson, George S., 140 West Eighth St.
Drake, J. C. Merle, 720 Sassafras St.
Drozeski, Edward H., 117 East Sixth St.
Dudenhoeffer, Joseph, 216 W. Twenty-Fourth St.
Dunn, Harrison A., 230 West Eighth St.
Dunn, Ira J., Harbour Creek.
Eastman, Anstice Ford, 227 W. Seventh St.
Fisher, Fred, Jr., 324 East Sixth St.
Flynn, T. M. M., 156 East Sixth St.
Foringer, Henry H., Pa. S. & S. Home.
Foringer, Owen, McKean.
Galster, Herman C., 129 W. Twenty-Fifth St.
Ghering, Harold A., Edinboro.
Gillespie, Martin S., Edinboro.
Gillette, N. Troy, Corry.
Gleeten, Scott D., 822 West Tenth St.
Graham, V. W., Corry.
Griswold, Homer E., 116 W. Eighth St.
Hall, Friend L., 234 West Eighteenth St.
Hart, Fred C., Girard.
Heard, Corydon F., 402 Masonic Temple.
Heard, James L., North East.
Henry, Ralph E., 240 West Eighteenth St.
Hess, Elmer, 501 Commerce Bldg.
Howe, Jesse Burkett, 21 E. Eighth St.
Humphrey, William J., Union City.
Hunter, Wallace R., 804 Peach St.
Irwin, Jeremiah S., 638 West Eighteenth St.
Jackson, DeWitt, Ninth and Peach Sts.
Johnson, Philip T., 139 East Sixth St.
Judge, Margaret Allen, 234 West Eighth St.
Kemble, Charles C., 146 West Ninth St.
Kendall, Eugene E., Waterford.
Kern, Rudolph A., 1015 West Eighth St.
Krimmel, Frank B., 433 East Sixth St.
Krum, Astley G., 163 West Eighteenth St.
Law-Wright, Katharine Hays, 247 West Eighth St.
Lefever, Clarence H., 507 West Eleventh St.
Lewinson, Bella, 315 West Eighteenth St.
Lick, Maxwell, 714 Sassafras St.
Lininger, Carl B., 517 East Ave.
Little, Watson W., Waterford.
Lloyd, John H., R. D. 2, Erie.
Lyons, Harry Eugene, Fairview.
McCallum, Chester H., 219 West Eighth St.
McCallum, Malcolm J., 133 West Ninth St.
McCarthy, Frank P., 147 East Fourth St.
McCune, Charles E., East Springfield.
McElree, Frank Eugene, Greenville (Mercer Co.).
McNeil, Charles A., 136 East Eighteenth St.
Miller, Adelbert B., North Girard.
Miller, Richard O., 420 West Eighth St.
Montgomery, James H., 234 West Sixth St.
Moorhead, Hugh M., 801 French St.
O'Dea, Charles A., 151 East Fifth St.
O'Donnell, John J., 2518 Parade St.
Parsons, Percy P., 1017 West Tenth St.
Peters, Joel M., Albion.
Peters, C. O., Albion.

Pfadt, James J., 613 West Twenty-Sixth St.
Purcell, Thomas, 716 Sassafras St.
Putnam, Burton H., North East.
Putts, B. Swayne, 143 West Eighth St.
Ray, George S., 153 W. Eighth St.
Reed, George A., 122 W. Twenty-First St.
Reinoehl, David V., Eighth and French Sts.
Ross, Fred E., 154 W. Eighth St.
Roth, Augustus H., 110 West Ninth St.
Roueche, William H., 226 West Eighth St.
Rutherford, J. Frank, Cranesville.
Schlindwein, George Wm., 138 West Ninth St.
Schrade, Anna M., 716 Sassafras St.
Shreve, Owen M., 162 W. Eighth St.
Shultz, Abner W., 923 Church St., Lebanon (Lebanon Co.).
Silliman, James E., 137 West Eighth St.
Smith, A. Louis, Corry.
Stackhouse, Joseph A., 326 Sassafras St.
Steadman, H. R., 529 East Sixth St.
Steinberg, Edward I., 129 West Eighth St.
Stilley, Jesse C., Sixth St. and East Ave.
Stoney, George F., 746 East Sixth St.
Strickland, Charles G., 153 West Seventh St.
Strickland, David H., 153 West Seventh St.
Strimple, J. Thurman, 801 E. Twenty-First St.
Studebaker, George M., 426 East Tenth St.
Tannehill, Joseph K., Girard.
Thompson, Ross W., Wesleyville.
Tredway, Thomas Palmer, 147 West Eighth St.
Umburn, LeRoy, Albion.
Walsh, Frank A., 128 East Seventh St.
Washabaugh, William B., 920 E. Twenty-First St.
Weibel, Elmer G., 125 W. Eighth St.
Wishart, Hagar MacLean, North East.
Woodruff, Row O., Waterford.
Wright, John W., 247 West Eighth St.

FAYETTE COUNTY SOCIETY

(Organized May 18, 1869)

(Connellsville is the postoffice when street address only is given.)

President...Owen R. Altman, Uniontown.
V. Pres.....Robert H. Jeffrey, Uledi.
Harry E. Rebok, Waltersburg.
Secretary...Herbert E. Hall, Nat. Bank of Fayette Co. Bldg., Uniontown.
Treasurer...James E. VanGilder, Uniontown.
Reporter....Arthur E. Crow, Uniontown.
Censors.....Owen R. Altman, Uniontown, 1 yr.
H. B. Guiher, Smithfield, 2 yrs.
Thomas B. Echard, 301 S. N. Bank Bldg., 3 yrs.
Committee on Public Policy and Legislation:
Owen R. Altman, Uniontown.
Arthur E. Crow, Uniontown.
Exec. Com...Owen R. Alman, Uniontown.
Herbert E. Hall, Uniontown.
H. C. Hoffman, Box 754.

Regular meetings shall be held the first Thursday of each month in Lodge Room, Third Floor, First National Bank Bldg., Uniontown.

MEMBERS (114)

Adams, Charles W., Uniontown.
Altman, Owen R., Uniontown.
Bailey, William J., Box 817.
Baltz, Samuel A., Uniontown.
Baum, Simon H., Uniontown.
Bell, Harry J., Dawson.
Bierer, Charles D., Uniontown.
Brady, Harry, Masontown.
Brown, Henry Stanley, Adah.
Burchinal, Lowry N., Point Marion.
Carothers, J. Richard, Waltersburg.
Carroll, J. B., Dunbar, R. D. 1.
Churchill, Wm. James, South Connellsville.
Cloud, Milton H., Masontown.
Cochran, James L., 132 S. Pittsburgh St.
Cogan, Jesse F., Dawson.
Coll, Hugh J., Box 635.
Conn, Clyde W., Uniontown, R. D. 3.
Crosbie, George T., Belle Vernon.
Crow, Arthur E., Uniontown.
Davidson, Carlton H., New Salem.
Dick, P. G., Woolworth Bldg.
Dixon, John C., 118 W. Apple St.
Doran, Benjamin P., Uniontown.
Douglas, Edward Wark, 130 W. Crawford Ave.
Echard, Thomas B., 301 S. N. Bank Bldg.
Eddy, Alexander L., Greensboro (Greene Co.).
Edie, Elliott B., 308 First Nat. Bank Bldg.
Edmunds, George H., 123 South Pittsburgh St.
Evans, George O., Uniontown.
Fox, Gilbert G., Newell.
Frankenburger, W. Sturgis, Allison.
Gaddis, Levi S., Uniontown.
Gans, Charles C., Chambersburg (Frank. Co.).
Giorgessi, Joseph, Brownsville.
Gordon, John W., Belle Vernon.
Graham, Charles R., Brownsville.
Gribble, Russell T., Fairchance.
Griffin, George H., Uniontown.
Guiher, Horace B., Smithfield.
Hackney, Jacob S., 36 W. Church St., Uniontown.
Hagan, Arthur S., Uniontown.
Hall, Herbert E., Nat. Bank Bldg. of Fayette Co., Uniontown.
Hansell, George B., Fayette City.
Hazlett, Jesse H., Vanderbilt.
Heath, Robert E., Fairchance.
Hess, George H., Uniontown.
Hibbs, Samuel E., Gallatin Ave., Uniontown.
Hoffman, Harry Clyde, Box 754.
Hoover, Freeman S., Brownsville.
Hopwood, George B., Chestnut Ridge.
Hopwood, William Henry, Smock.
Hunger, A. D., Point Marion.
Ingraham, Eben R., Masontown.
Jackson, James Marcus, New Salem.
Jackson, John D., 210 E. Crawford Ave.
Jeffrey, Robert Harrison, 217 Union St. Ext., Uniontown.
Johnson, Chester B., Vanderbilt.
Johnson, L. Dale, Ohiopyle.
Junk, James L., 104 Meadow Lane.
Kerr, J. French, 115 E. Fairview Ave.
Kidd, Alexander R., 402 S. N. Bank Bldg.
Kimmel, William S., Republic.
Kramer, Harry F., Republic.
LaBarre, John Pollard, 406 F. N. B. Bldg., Uniontown.
LaClair, Charles H., Uniontown.
Larkin, Martin J., Brier Hill.
Larkin, Peter A., Uniontown.
Lilley, Wilbur M., Brownsville.
Lowe, David Earl, New Salem.
Lowman, Norman Bert, Belle Vernon.
Luman, Clark M., Uniontown.
Lyon, Samuel E., Mt. Braddock.
McCombs, Edgar A., 345 N. Pittsburgh St.
McCormick, Louis P., 201 S. N. Bank Bldg.
McCracken, Jeffe L., Smithfield.
McDonald, George F., 22 Market St., Brownsville.
McHugh, William A., 313 First Nat. Bank Bldg., Uniontown.
McKee, Robert S., 715 W. Crawford Ave.
Martin, Ralph S., Star Junction.
Meachem, John J., Masontown.

Means, William H., Percy.
Messmore, Harry Benjamin, Brownsville.
Messmore, John Lindsey, Masontown.
Messmore, Walter T., Nutt Ave., Uniontown.
Nixon, James Holbert, Uledi.
Noon, Milton A., Everson.
Odbert, Arthur King, South Brownsville.
O'Neil, Andrew, Uniontown.
Opinsky, Andrew G., Uniontown.
Osborn, Wilkins William, Upper Middletown.
Parshall, James W., Uniontown.
Patterson, William P., Fairchance.
Peters, Stephen E., Masontown.
Pflueger, Charles J., Fairchance.
Pisula, Vincent Paul, Everson.
Quinn, William L., Fayette City.
Rasely, Edwin R., Uniontown.
Rebok, Harry Edward, Waltersburg.
Reichard, Lewis N., Brownsville.
Ritenour, Joseph P., 21 Mill St., Uniontown.
Robinson, George H., Uniontown.
Ryan, Charles C., Republic.
Sangston, D. Hibbs, McClellandtown.
Sangston, James H., McClellandtown.
Sherrick, Earl C., 136 S. Pittsburgh St.
Smith, Alfred C., Brownsville.
Smith, Chas. H., 71 Morgantown St., Uniontown.
Smith, Peter Franklin, Uniontown.
Stollar, Bert Lee, Fayette City.
Sturgeon, John D., Uniontown.
Utts, Charles William, 2 Weihe Bldg.
Van Gilder, James E., Uniontown.
Wagoner, LeRoy C., Brownsville.

FRANKLIN COUNTY SOCIETY

(Medical Society of Franklin County organized Jan. 4, 1825. Reorganized 1869.)

President...Guy P. Asper, Chambersburg.
V. Pres.....William E. Holland, Fayetteville.
Samuel D. Shull, Chambersburg.
Sec.-Rept...John J. Coffman, Scotland.
Asst. Sec. and Treasurer...Frank N. Emmert, Chambersburg.
Censors.....M. Webster Stofer, Chambersburg, 1917.
Theodore H. Weagley, Marion, 1918.
J. Elmond Kempter, Chambersburg, 1919.
Committee on Public Policy and Legislation:
David F. Unger, Mercersburg.
Leslie M. Kauffman, Kauffman.
John W. Croft, Waynesboro.
Exec. Com...Guy P. Asper, Chambersburg.
John J. Coffman, Scotland.
Percy D. Hoover, Waynesboro.

Stated meetings in Chambersburg third Tuesday of each month unless otherwise decided. Election of officers in January.

MEMBERS (45)

Amberson, J. Burns, Waynesboro.
Ash, William S., 135 Leicester Ct., Detroit, Mich.
Asper, Guy P., Chambersburg.
Brosius, William H., Mont Alto.
Bushey, Franklin A., Greencastle.
Coffman, John J., Scotland.
Coons, Samuel G., Dry Run.
Crist, Chester Garfield, Gettysburg (Adams Co.).
Croft, John W., Waynesboro.
Devor, John H., Chambersburg.
Emmert, Frank N., Chambersburg.
Gilland, John C., Greencastle.
Gordon, John K., Chambersburg.
Grove, Aaron B., Shady Grove.
Hartzell, Charles A., Fayetteville.
Holland, William E., Fayetteville.
Hoover, Percy D., Waynesboro.
Kauffman, Leslie M., Kauffman.
Kempter, J. Elmond, Chambersburg.
Kinter, John H., St. Thomas.
Laughlin, Rebecca P., Waynesboro.
McClain, Henry C., Hustontown (Fulton Co.).
Maclay, Joseph P., Chambersburg.
Miley, Harry M., Chambersburg.
Mosser, John W., McConnellsburg (Fulton Co.).
Myers, Benjamin F., Chambersburg.
Noble, William P., Greencastle, R. D. 5.
Ogle, Charles Clinton, Chambersburg.
Palmer, Charles F., Chambersburg.
Robinson, Geo. M., McConnellsburg (Fulton Co.).
Saxe, LeRoy H., Fannettsburg.
Schultz, William C., Waynesboro.
Seaton, Lewis H., Chambersburg.
Shull, Samuel D., Chambersburg.
Snively, A. Barr, Waynesboro.
Sollenberger, Aaron B., Waynesboro.
Stofer, M. Webster, Chambersburg.
Swan, James H., St. Thomas.
Swartzwelder, James S., Mercersburg.
Thomas, Samuel B., Waynesboro.
Thrush, Ambrose W., Chambersburg.
Unger, David F., Mercersburg.
Weagley, Theodore H., Marion.
White, Thomas D., Orrstown.
Wright, Fairfax G., Chambersburg.

GREENE COUNTY SOCIETY

(Organized June 26, 1883.)

President...Thomas N. Millikin, Waynesburg.
V. Pres.....Frank S. Ullom, Waynesburg.
Secretary...Harry C. Scott, Waynesburg.
Cor. Sec....Rufus E. Brock, Waynesburg.
Reporter....Thomas B. Hill, Waynesburg.
Treasurer...Stephen E. Wignet, Waynesburg.
Censors.....Robert W. Norris, Waynesburg.
Clinton H. Day, Clarksville.
Samuel T. Williams, Waynesburg.
Committee on Public Policy and Legislation:
Thomas N. Millikin, Waynesburg.
Thomas B. Hill, Waynesburg.

Stated meetings at Waynesburg the second Tuesday of each month.

MEMBERS (20)

Blair, Thomas L., Waynesburg.
Brock, Rufus Edward, Waynesburg.
Core, Amanda R., Whiteley.
Day, Clinton H., Clarksville.
Day, Jonathan R., Nineveh.
Hatfield, George W., Mt. Morris.
Hill, Thomas Benton, Waynesburg.
Hoge, Smith A., Rices Landing.
Iams, Samuel H., Waynesburg.
Laidley, Edmund W., Carmichaels.
McNeely, Lindsey S., Kirby.
Millikin, Lorenzo F., Harveys.
Millikin, Thomas N., Waynesburg.
Norris, Robert Walton, Waynesburg.
Rice, Homer C., New Freeport.
Scott, Harry Chinsworth, Waynesburg.
Spragg, Charles William, Waynesburg.
Ullom, Frank Sellers, Waynesburg.
Wignet, Stephen E., Waynesburg.
Williams, Samuel T., Waynesburg.

HUNTINGDON COUNTY SOCIETY

(Organized Aug. 14, 1849. Reorganized April 9, 1872.)

President...Fred P. Simpson, Mapleton Depot.
V. Pres.....Harry B. Fetterhoof, Huntingdon.
Secretary....John M. Beck, Alexandria.
Treasurer...George G. Harman, Huntingdon.
Ed. & Rept..Cloy G. Brumbaugh, Huntingdon.
Asso. Editor.John M. Keichline, Jr., Petersburg.
Censors.....Raymond R. Decker, Orbisonia.
Robert H. Moore, Huntingdon.
James R. St. Clair, Alexandria.
Committee on Public Policy and Legislation:
Frank L. Schum, Huntingdon.
Charles Campbell, Petersburg.
Howard C. Frontz, Huntingdon.
Prog. Com..William H. Sears, Huntingdon.
Robert H. Moore, Huntingdon.
John M. Keichline, Jr., Petersburg.

Stated meetings at the Huntingdon Club Rooms, Huntingdon, the second Thursday of each month at 1:30 p. m. Election of officers in December.

MEMBERS (35)

Banks, Clark W., Derry (Westmoreland Co.)
Beck, John M., Alexandria.
Bley, Henry, Dudley.
Brumbaugh, Cloy G., Huntingdon.
Brumbaugh, Samuel Oscar, Huntingdon.
Bush, Charles B., 1433 Walnut St., Philadelphia
Campbell, Charles, Petersburg.
Campbell, Robert B., New Grenada (Fulton Co.).
Campbell, William J., Mt. Union.
Chisolm, Henry Clay, Huntingdon.
Decker, Raymond R., Orbisonia.
Duncan, Earl Spencer, Huntingdon.
Fetterhoof, Harry B., Huntingdon.
Frontz, Howard C., Huntingdon.
Green, Edward Houghton, Mill Creek.
Harman, George G., Huntingdon.
Herkness, John S., Mount Union.
Horton, Harold G., Three Springs.
Hutchison, Fred. R., Huntingdon.
Johnston, James M., Huntingdon.
Keichline, John M., Jr., Petersburg.
Koshland, James G., Cassville.
Locke, Howard V., Orbisonia.
McClain, Charles A. Roe, Mt. Union.
McGarrah, Harry B., Robertsdale.
Moore, Robert Hall, Huntingdon.
Myers, Rudolph, Huntingdon.
Newlin, Gladys Wright, Huntingdon.
St. Clair, James R., Alexandria.
Schum, Frank L., Huntingdon.
Sears, William Hardin, Huntingdon.
Simpson, Fred P., Mapleton Depot.
Simpson, George W., Mill Creek.
Waite, Alvin B., Huntingdon.
Wilson, Harry C., Warriorsmark.

INDIANA COUNTY SOCIETY

(Organized July 21, 1858.)

President...George E. Simpson, Indiana.
V. Pres.....William L. Shields, Kent.
Frank F. Moore, Lucerne.
Sec.-Treas...Medus M. Davis, Indiana.
Cor.-Sec....Frederick W. St. Clair, Indiana.
Reporter....Harry B. Neal, Indiana.
Censors.....Benjamin F. Coe, Clymer, 3 yrs.
Frank F. Moore, Lucerne, 2 yrs.
Thomas D. Stephens, Penn Run, 1 yr.
Committee on Public Policy and Legislation:
Luther S. Clagett, Blairsville.
William H. Nix, 529 Water St., Indiana.
Alexander H. Stewart, Box 85, Indiana.

Clinics at the Indiana Hospital by the staff physicians, March 13, June 12, October 9, and December 11. Other meetings second Tuesday of each month in the Sun Parlor of Indiana House.

MEMBERS (60)

Ansley, William B., Saltsburg.
Boden, Todd R., R. D., McIntire.
Bushnell, Emerson M., Black Lick.
Buterbaugh, Howard B., Indiana.
Camp, John N., Ernest.
Carson, Jason W., Indiana.
Carson, John B., Blairsville.
Clagett, Luther S., Blairsville.
Clark, Albert W., Ernest.
Coe, Benjamin F., Clymer.
Davis, Medus M., Indiana.
Dodson, William E., Indiana.
Elkin, John A., Smicksburg.
Everwine, J. Merle, Clymer.
Fisher, James G., Plumville.
Gates, Dunn William, Indiana.
Glasser, J. C., Marion Center.
Gourley, John C., Windber (Somerset Co.).
Harmon, Clair G., West Lebanon.
Hileman, Elmer E., Hillsdale.
Hotham, H. DeV., Saltsburg.
Jaquish, Elvin W., Clymer.
Johns, William, 1311 Center St., Wilkinsburg (Allegheny Co.).
Kamerer, Samuel Alden, Smicksburg.
Kirk, Charles H., Homer City.
Lewis, E. Budd, Glen Campbell.
Lewis, Ray N., Apollo (Armstrong Co.).
Lloyd, Harvey W., Starford.
Lyon, George R., Heilwood.
Lytle, Ralph M., Saltsburg.
McCreight, William S., Blairsville.
McFarlane, Joseph P., Vintondale.
McNellis, T. J., Waterman.
Miller, J. S., Clymer.
Moore, Frank Fisher, Lucerne.
Neal, Harry B., Indiana.
Nix, William H., 529 Water St., Indiana.
Onstott, Elmer E., Saltsburg.
Peterman, James H., Cherry Tree.
Reed, Charles Paul, Homer City.
Rink, Chas. E., Cor. Eighth and Water Sts., Indiana.
Rutledge, Albert T., Blairsville.
St. Clair, John M., Indiana.
St. Clair, Frederick W., Indiana.
Salisbury, William John, Armagh.
Schall, Reuben Elmer, Arcadia.
Shields, William L., Kent.
Simpson, George E., Indiana.
Simpson, William A., Indiana.
Smith, Clark M., Plumville.
Smith, John Henry, Shelocta.
Stephens, Thomas D., Penn Run.
Stevenson, Frank B., Indiana.
Stewart, Alexander H., Box 85, Indiana.
Stewart, John M., Marion Center.
Sutton, M. Alva, Avonmore (Westmoreland Co.).
Ward, James, Lucerne Mines.
Weitzel, William F., Indiana.
Widdowson, William Charles, Black Lick.

JEFFERSON COUNTY SOCIETY

(Organized September 11, 1877. Incorporated April 16, 1887.)

President...Harry B. King, Reynoldsville.
V. Pres.....Charles R. Stevenson, Delancey.
F. L. Schumacher, Dubois.
Sec.-Treas..Norman C. Mills, Eleanor.
Reporter....John H. Murray, Punxsutawney.
Censors.....Harry P. Thompson, Brookville, 1 yr.
J. C. Borland, Falls Creek, 2 yrs.
R. C. Gourley, Punxsutawney, 3 yrs.
Committee on Public Policy and Legislation:
William F. Beyer, Punxsutawney.
Russell C. Gourley, Punxsutawney.
John E. Grube, Punxsutawney.
Exec. Com...Harry B. King, Reynoldsville.
Norman C. Mills, Eleanor.
Spencer M. Free, Dubois.
Prog. Com..Spencer M. Free, Dubois.
Ralph R. Jordan, Dubois.
Forest L. Schumacher, Dubois.

Stated meetings the second Thursday of each month at place determined by vote. Election of officers in January.

MEMBERS (58)

Allison, Harry W., Timblin.
Balmer, Abraham F., Brookville.
Benson, Francis L., Punxsutawney.
Benson, Joseph P., Punxsutawney.
Beyer, S. Meigs, Punxsutawney.
Beyer, William F., Punxsutawney.
Booher, Jay C., Falls Creek (Clearfield Co.).
Borland, James C., Falls Creek (Clearfield Co.).
Bowser, Ira D., Reynoldsville.
Brown, John K., Brookville.
Davenport, Samuel M., Dubois (Clearfield Co.).
Ferman, John W., Luthersburg (Clearfield Co.).
Free, Spencer M., Dubois (Clearfield Co.).
Frye, J. Clarence, Williamsburg (Blair Co.).
Gatti, William J., Punxsutawney.
Gourley, Harry R., Punxsutawney.
Gourley, Russell C., Punxsutawney.
Grube, John E., Punxsutawney.
Hamilton, Sylvester S., Punxsutawney.
Haven, James B., Brookville.
Hayes, Leo Z., Conifer.
Huff, Samuel R., Hazen.
Humphreys, George H., Brockwayville.
Johnstone, Charles W., Dubois (Clearfield Co.).
Jordan, Ralph Ross, Dubois (Clearfield Co.).
Kearney, J. Gardner, Dilltown (Ind. Co.).
King, Harry B., Reynoldsville.
Lorenzo, Frank A., Punxsutawney.
Lukehart, Joseph M., Rossiter (Indiana Co.)
McKinley, A. C., Corsica.
McNeil, Arthur R., Apollo (Armstrong Co.).
Maine, Charles L., Dubois (Clearfield Co.).
Matson, Walter W., Brookville.
Mills, Norman C., Eleanor.
Mohney, Irvin R., Brookville.
Morris, Samuel J., Hamilton.
Murray, John H., Punxsutawney.
Musser, Guy M., Punxsutawney.
Neale, J. Buchanan, Reynoldsville.
Newcome, John A., Vandergrift (Westm. Co.).
Newcome, William C., Big Run.
Nolan, Thomas F., Reynoldsville.
O'Neal, Harry A., Knoxdale.
Pringle, Francis D., Punxsutawney.
Raine, James F., Sykesville.
Ritter, Daniel, Punxsutawney.
Sayers, John C., Reynoldsville.
Schumacher, Forest L., Dubois (Clearfield Co.).
Scott, Clinton H., Brookville.
Simpson, Alverdi J., Summerville.
Smathers, Francis C., Punxsutawney.
Snyder, Wayne L., Brookville.
Stevenson, Charles R., Delancey.
Thomas, David W., Force (Elk Co.)
Thompson, Harry P., Brookville.
Walters, Jacob A., Punxsutawney.
Williams, Thornton R., Cynwyd (Montg. Co.).
Young, Roy L., Ludlow (McKean Co.).

JUNIATA COUNTY SOCIETY

(Organized Aug. 7, 1907.)

President...William H. Haines, Thompsontown.
V. Pres.....Amos W. Shelley, Port Royal.
Samuel F. Metz, Thompsontown.
Secretary...Brady F. Long, Mifflin.
Reporter....William H. Banks, Mifflintown.
Treasurer...Isaac G. Headings, McAlisterville.
Censors.....Amos W. Shelley, Port Royal.
William H. Haines, Thompsontown.
Committee on Public Policy and Legislation:
William H. Banks, Mifflintown.
Brady F. Long, Mifflin.

Meetings held the first Wednesday of January, April, July and October at 1 p. m., in the Tuscarora Club Rooms, Mifflintown.

MEMBERS (11)

Banks, William H., Mifflintown.
Brown, Joseph Stewart, Okeson.
Haines, William H., Thompsontown.
Heading, James G., Port Royal.
Headings, Isaac G., McAlisterville.
Long, Brady F., Mifflin.
Metz, Samuel F., Thompsontown.
Quig, Robert M., East Waterford.
Ritter, Benjamin H., McCoysville.
Shelley, Amos W., Port Royal.
Willard, Herman F., Mexico.

LACKAWANNA COUNTY SOCIETY

(Organized November 20, 1878.)

(Scranton is the postoffice when street address only is given.)

President...J. Norman White, 349 S. Main Ave.
V. Pres.....Albert J. Winebrake, 441 Wyoming Ave.
John F. Zychowicz, 1315 Prospect Ave.
Sec.-Treas..Harry W. Albertson, 2416 N. Main Ave.
Assistant
Sec.-Rept...Arthur E. Davis, 433 Wyoming Ave.
Librarian...Frederick P. Hollister, 508 Dime Bank Bldg.
Censors.....John P. Donahoe, 310 Wyoming Ave., 1918.
Herbert D. Gardner, Scranton Private Hosp., 1919.
James L. Rea, 1742 Sanderson Ave., 1920.
Committee on Public Policy and Legislation:
William Rowland Davies, 407 Traders' Bank Bldg.
William A. Paine, 1202 Washburn St.
Welland A. Peck, 2604 N. Main Ave.
Charles Falkowsky, Jr., 327 Spruce St.
Trustees....Daniel A. Capwell, 316 N. Washington St., 1918.
John B. Corser, Scranton Private Hosp., 1919.
Frederick L. Van Sickle, Olyphant, 1920.
Morgan J. Williams, 302 S. Main Ave., 1921.
Lowell M. Gates, 802 Mulberry St., 1922.

Regular weekly meetings are held Tuesday evenings at 8:45 in the society's rooms, Real Estate Building, 136 N. Washington Ave., Scranton. Election of officers in January.

MEMBERS (154)

Albertson, Harry W., 2416 N. Main Ave.
Anderson, U. Grant, Carbondale.
Bailey, Mark L., Carbondale.
Bateson, John C., 1734 Jefferson Ave.
Beddoe, Benjamin G., 324 S. Main Ave.
Bendick, John J., Olyphant.
Berge, William Henry, Avoca.
Berlinghof, George J., 1539 Wyoming Ave.
Berney, Daniel E., 616 Spruce St.
Bernstein, Arthur H., 1000 Webster Ave.
Bessey, Herman, 1805 Church Ave.
Bishop, Frederick J., 801 Prescott Ave.
Brown, Carl G., 322 Mulberry St.
Bryant, Frank G., 1107 Lafayette St.
Burns, Reed, 746 Jefferson Ave.
Butzner, John Decker, 506 Dime Bank Bldg.
Cantor, Aaron S., Dickson City.
Capwell, Daniel A., 316 N. Washington St.
Cavill, Francis T., Jessup.
Clarke, Anna C., 320 Jefferson Ave.
Connell, Alexander J., 404 Scranton Life Bldg., 530 Spruce St.
Conway, William H., Olyphant.
Cornell, Harvey B., 101 S. Main Ave.
Corser, John B., Scranton Private Hospital.
Costello, Bernard E., Vandling.
Cross, Friend A., 310 Dime Bank Bldg.
Curtin, Eugene A., Dunmore.
Davenport, Fred M., 827 Green Ridge St.
Davies, Emlyn Thomas, Old Forge.
Davies, Philip J., 608 S. Main Ave.
Davies, William Rowland, Traders Bank Bldg.
Davis, Arthur E., 433 Wyoming Ave.
Davis, William E., Dunmore.
Dean, C. Edgar, 327 Washington Ave.
Deantonio, Emilio, Box 68, 346 Franklin Ave.
DeMont, Charlotte, 357 Chestnut St., Dunmore.
Donahoe, John P., 310 Wyoming Ave.
Downton, Ernest W., Starrucca (Wayne Co.).
Edwards, Edward E., Taylor.
Evans, Daniel W., 157 S. Main Ave.
Falkowsky, Charles, Jr., 327 Spruce St.
Frey, Clarence Leslie, Dime Bank Bldg.
Fulton, William G., 433 Wyoming Ave.
Gardner, Herbert D., Scranton Private Hospital.
Garvey, Frank C., Connell Bldg.
Gates, Lowell M., 802 Mulberry St.
Gibbons, Myles A., Dunmore.
Goodfriend, Harry, 232 Adams Ave.
Grant, John W., Dickson City.
Graves, Isaac S., Jermyn.
Grover, John B., Peckville.
Hager, Albert E., Taylor.
Halpert, Henry, Connell Bldg.
Hazlett, Almon C., Dunmore.
Heston, Patrick J., 2602 Birney Ave.
Hollister, Frederick P., 508 Dime Bank Bldg.
Hower, Heister V., 345 Wyoming Ave.
Jackson, Byron H., Co. Sav. Bank Bldg.
Jenkins, David J., 234 S. Main Ave.
Johnson, William S., Carbondale.
Kay, Thomas W., 506 Dime Bank Bldg.
Kearney, Patrick H., 312 Wyoming Ave.
Kelly, Edward H., 17 Rafter Bldg.
Kennedy, Lucius Carter, 1030 Greenridge St.
Kerling, George A., Gouldsboro.
Kerstetter, P. F., 1009 S. Main Ave.
Kiesel, Ernest L., 515 Lackawanna Ave.
Killeen, Thomas G., 856 Capouse Ave.
Knedler, J. Warren, Moscow.
Leopardi, Enrico Alfredo, Old Forge.
Lewert, Philip J., 211 Jefferson Ave.
Lewis, James Davis, 204 West Market St.
Lindsay, George G., Scranton Life Bldg.
Lloyd, Rossiter J., Olyphant.
Loftus, John L., Old Forge.
Lonergan, Philip A., Dickson City.
Lowry, Welles J., Carbondale.
Lyons, John W., Jessup.
McGinty, Edward F., 415 Mulberry St.
McGinty, James A., Olyphant.
McKeage, Robert B., Traders Bank Bldg.
MacDougall, William L., 216 Connell Bldg.
Mackey, Richard N., Clarks Summit.
Mackey, Robert Bliss, Waverly.
Malaun, Murvington E., Carbondale.
Manley, Peter C., 1326 Pittston Ave.
Martin, Thomas P., Mayfield.
Monie, Thomas, Archbald.
Moss, John H., Archbald.
Moyer, Jacob C., Connell Building.
Mullin, Oscar J., Hamlin (Wayne Co.).
Murphy, Frank L., Dunmore.
Murray, Glibert D., Co. Savings Bank Bldg.
Murrin, Connell Edward, 732 Pittston Ave.
Murrin, Joseph S., Carbondale.
Myer, William W., Old Forge.
Newbury, Nelson E., 1515 Capouse Ave.
Niles, John S., Carbondale.
Noecker, Charles B., 216 Connell Bldg.
Noone, Michael J., 2060 N. Main Ave.
O'Brien, J. Emmett, 741 Quincy Ave.
O'Dea, Patrick J., 169 S. Main Ave.
O'Malley, Martin F., 306 N. Washington Ave.
O'Malley, William J., 311 N. Main Ave.
Paine, William A., 1202 Washburn St.
Peck, John L., 524 Vine St.
Peck, Welland A., 2604 N. Main Ave.
Peet, Ernest L., 102 W. Market St.
Penticost, Milton I., Peckville.
Price, John J., Olyphant.
Rea, James L., 1742 Sanderson Ave.
Rea, James L., Jr., 1709 Monsey Ave.
Redding, Leonard G., Scranton Life Bldg.
Reedy, Walter M., 631 Connell Bldg.
Reifsnyder, Joseph C., Connell Bldg.
Ritz, Reinhart J., 715 N. Main Ave.
Roberts, John J., 225 S. Main Ave.
Robison, John I., 309 Connell Bldg.
Rodham, Thomas B., 1824 N. Main Ave.
Rohrbach, Harvey O., Mill City (Wyoming Co.).
Ruddy, James P. H., 206 Dime Bank Bldg.
Rutherford, Thomas A., Clarks Summit.
Sedlak, Frank J., 950 Prescott Ave.
Severson, Irwin W., 641 N. Main Ave.
Silverstein, Nathan, 540 Wyoming Ave.
Smith, Addison W., 930 Clay Ave.
Stegner, Adam, Rendham.
Stevens, Floyd W., 618 Harrison Ave.
Sturge, Edgar, 1200 Providence Road.
Sullivan, John J., Jr., Traders Bank Bldg.
Sureth, Theodore, 1821 N. Main Ave.
Sweeney, Leo G., Washington Ave. and Marion St.
Swift, Frank L., Dunmore.
Szlupas, John, 1419 N. Main Ave.
Thompson, James J., Carbondale.
Timlin, John J., Old Forge.
VanDoren, William, Archbald.
VanSickle, Frederick L., Olyphant.
Van Vechten, George J., 1804 Monsey Ave.
Villone, Joseph, 206 Chestnut St.
von Poswik, Gisela, 523 N. Washington Ave.
Wahl, John C., 507 Pittston Ave.
Wainwright, Jonathan M., Co. Savings Bank Bldg.
Wall, Russell T., 516 Spruce St.
Walsh, Anthony T., 306 Pittston Ave.
Ware, Horace B., Board of Trade Bldg.
White, J. Norman, 349 S. Main Ave.

White, Robert V., 212 S. Main Ave.
Williams, Morgan J., 302 S. Main Ave.
Wilson, John D., 225 Jefferson Ave.
Winebrake, Albert J., 441 Wyoming Ave.
Wormser, Bernard B., 213 Board of Trade Bldg.
Zeller, Charles A., Dalton.
Zychowicz, John F., 1315 Prospect Ave.

LANCASTER CITY AND COUNTY SOCIETY

(Organized Jan. 26, 1844. Incorporated April 15, 1844.)

(Lancaster is the postoffice when street address only is given.)

President...J. Paul Roebuck, 233 N. Duke St.

V. Pres.....Walter N. Keylor, Leacock.
Jerome S. Kendig, Salunga.

Sec.-Treas..Horace C. Kinzer, 134 N. Duke St.

Reporter....Walter D. Blankenship, 144 E. Chestnut St.

Librarian...Frank G. Hartman, 136 N. Duke St.

Censors.....George W. Berntheizel, Columbia.
Jacob R. Lehman, Mountville.
John J. Newpher, Mount Joy.

Trustees....Theodore B. Appel, 305 N. Duke St.
Lewis M. Bryson, Paradise.
J. Henry Musser, Lampeter.

Committee on Legal Affairs:
Edgar J. Stein, 225 N. Duke St.
John L. Atlee, 129 E. Orange St.
Joseph P. Kennedy, Columbia.
Walter N. Keylor, Leacock.
Jacob D. Hershey, Manheim.

Committee on Public Policy and Legislation:
Frank G. Hartman, 136 N. Duke St.
Theodore B. Appel, 305 N. Duke St.
Horace C. Kinzer, 134 N. Duke St.

Exec. Com...J. Paul Roebuck, 233 N. Duke St.
Horace C. Kinzer, 134 N. Duke St.
Charles P. Stahr, 139 E. Walnut St.

Stated meetings in Malta Temple, 40 West Kine Street, Lancaster, the first Wednesday of each month, at 2 p. m. Election of officers in January.

MEMBERS (132)

Achey, Frederick A., 133 E. Walnut St.
Alexander, Guy Levis, Riverton, N. J.
Alleman, Frank, 420 W. Chestnut St.
Appel, Theodore B., 305 N. Duke St.
Armstrong, James, Holtwood.
Atlee, John L., 129 E. Orange St.
Baer, Walter K., 223 N. Duke St.
Barsumian, Hagop G., 205 E. King St.
Berntheizel, George W., Columbia.
Bertram, Albert J., Box 88, Pompton Lakes, N. J.
Binkley, William G., Washingtonboro.
Bitzer, Newton E., 236 W. Chestnut St.
Blankenship, Walter D., 144 E. Chestnut St.
Blough, Henry K., Elizabethtown.
Bolenius, Robert M., 48 S. Queen St.
Bowman, Abraham G., 318 N. Duke St.
Breneman, Park P., 146 E. Walnut St.
Bricker, Elizabeth Bausman, Lititz.
Bryson, Howard R., 246 W. Orange St.
Bryson, Lewis M., Paradise.
Cary, Dale Emerson, 204 E. King St.
Daniels, Winfred Harry, 723 Marietta Ave.
Davis, Henry B., 241 E. King St.
Davis, Miles L., 114 N. Prince St.
Day, George E., Strasburg.
Denlinger, Maurice M., Rohrerstown.
Dunlap, J. Francis, Manheim.
Farmer, Clarence R., 573 W. Lemon St.
Ferguson, Thomas Reed, Kirkwood.
Fox, William Garfield, 48 E. Orange St.
Frew, George W. H., Paradise.
Garretson, William, East Petersburg.
Garvey, Thomas Q., 443 W. Chestnut St.
Gerhard, Milton U., 43 S. Prince St.
Good, Benjamin F., Washingtonboro.
Hamaker, William B., 137 N. Duke St.
Harter, G. Alvin, Maytown.
Hartman, Frank G., 136 N. Duke St.
Hassenplug, Harry Gilmore, 50 S. Ann St.
Heller, Samuel H., 10 N. Mulberry St.
Helm, Amos H., New Providence.
Helm, Charles E., Bart.
Helm, John D., New Providence.
Henry, J. Albert, 428 N. Charlotte St.
Herr, Ambrose J., 441 College Ave.
Herr, Benjamin F., Millersville.
Herr, John T., Landisville.
Herr, William H., 226 N. Duke St.
Herr, William M., 224 W. Orange St.
Hershey, George Bair, Gap.
Hershey, Jacob D., Manheim.
Hertz, John L., Lititz.
Hess, Ammon Gross, Mountville.
Hess, William G., Greene.
Hostetter, Jacob E., Gap, R. D. 1.
Houston, Joseph W., 238 E. King St.
Hurst, Michael W., Talmage.
Ilyus, Edmund B., 130 E. Walnut St.
Ingram, Theodore E., Marietta.
Irwin, Thaddeus S., Atglen (Chester Co.).
Kendig, Benjamin E., Salunga.
Kendig, Jerome S., Salunga.
Kennedy, Joseph P., Columbia.
Keylor, Walter N., Leacock.
Kinard, George C., Lincoln.
Kinard, George W., Leacock.
Kinard, John W., 129 N. Duke St.
Kinzer, Horace Clemens, 134 N. Duke St.
Kyle, Edward V., Christiana.
Leaman, Walter J., Leaman Place.
Lefever, Willis Hess, Ephrata.
Leh, Homer D., 234 N. Duke St.
Lehman, Jacob R., Mountville.
Lenhardt, Elmer E., Millersville.
Leslie, LeRoy K., Bareville.
Lightner, Isaac Newton, Ephrata.
Long, Howard A., Brickerville.
Lowell, Francis Carroll, 41 N. Prince St.
Martin, Daniel Webster, Manheim.
Martin, Dwight C., Lititz.
Martin, John R. S., Christiana.
Mentzer, John F., Ephrata.
Miller, Samuel W., 217 E. King St.
Mowery, Harry A., Marietta.
Mowery, Jacob L., White Rock.
Musser, J. Henry, Lampeter.
Mylin, Walter F., Intercourse.
Netcher, Charles E., 46 N. Prince St.
Newpher, John J., Mount Joy.
Noble, Edward I., 145 N. Duke St.
Pomerantz, Harry, 17 E. Walnut St.
Posey, Silas Robert, Lititz.
Reemsnyder, Byron J., Ephrata, R. D. 3.
Reeser, Norman B., Lititz.
Reeser, Richard, Columbia.
Ressler, Jacob L., Bird-in-hand.
Ringwalt, Martin, Rohrerstown.
Roebuck, J. Paul, 233 N. Duke St.
Rohrer, George R., 45 E. Orange St.
Rohrer, Thaddeus M., Quarryville.
Roop, Claude D., State Hosp., Norristown (Montg. Co.).
Roop, Harry B., Columbia.
Shaeffer, Peter F., Christiana.
Showalter, Henry C. W., New Holland.
Shartle, J. Miller, 30 S. Prince St.

Shear, Lewis M., 601 Manor St.
Shookers, Tobias C., 146 N. Prince St.
Simons, Isaac Shirk, Elizabethtown.
Smith, Howard S., Reinholds.
Smith, James Augustus, Reamstown.
Snyder, Asher F., Mount Joy.
Stahr, Charles P., 139 E. Walnut St.
Stein, Edgar J., 225 N. Duke St.
Stever, John C., Bainbridge.
Steward, William J., Spring City (Chester Co.).
Stubbs, Ambrose H., Peach Bottom.
Sultzbach, Henry Miller, 231 E. King St.
Thome, Winfield M., Mount Joy.
Tinney, William Scott, Strasburg.
Treichler, Vere, Elizabethtown.
Trexler, Jacob F., 134 N. Prince St.
Walter, Adam V., Brownstown.
Walter, Henry, Rothsville.
Wentz, Paul R., New Holland.
Winters, John L., Blue Ball.
Witmer, Charles Howard, 126 E. Chestnut St.
Witmer, Elias H., Neffsville.
Witmer, Frank B., Lebanon (Lebanon Co.).
Workman, William M., Mount Joy.
Yoder, Mahlon Harold, Lititz.
Yost, John W., Bethesda.
Ziegler, James P., Mount Joy.

LAWRENCE COUNTY SOCIETY

(Organized Oct. 7, 1897.)

President...Brant E. Sankey, New Castle.

V. Pres.....Thomas M. Shaffer, New Castle.
Victor C. Wagner, New Castle.

Sec.-Rept...William A. Womer, New Castle.

Treasurer...Jesse R. Cooper, New Castle.

Censors.....John Foster, New Castle.
Walter L. Campbell, New Castle.
Robert G. Miles, New Castle.

Committee on Public Policy and Legislation:
Loyal W. Wilson, New Castle.
Don C. Lindley, New Castle.

Society meets in society room in Greer Block, New Castle, on the first Thursday of every month at 8:30 p. m. Election of officers in January.

MEMBERS (53)

Autenreith, William Clifford, Bessemer.
Berger, Benjamin Morris, New Castle.
Blackwood, James M., New Castle.
Boak, Robert G., New Castle.
Brice, Patrick J., New Castle.
Brown, Thaddeus C., New Castle.
Burchfield, William Clinton, New Castle.
Campbell, Walter L., New Castle.
Clark, William A., Jr., New Wilmington.
Cleland, William D., Harlansburg.
Cooper, Jesse R., New Castle.
Davidson, William J., New Castle.
Dean, Hollis G., New Castle.
Douthett, James C. B., Pulaski.
Flannery, Charles F., New Castle.
Foster, John, New Castle.
Gageby, Lenore H., New Castle.
Gaston, Perry S., New Castle.
Harper, H. Cyrus, New Castle.
Hunt, Charles B., New Castle.
Iseman, Charles M., Ellwood City.
Kaplan, Eliah, New Castle.
Lindley, Don C., New Castle.
McComb, Edwin C., New Castle.
McCune, Samuel R., New Castle.
McDowell, C. Fenwick, New Castle.
McGiffin, Matthew N., New Bedford.
McKee, Harry W., New Castle.
McLaughry, Elizabeth M., 107 N. Mercer St., New Castle.
Miles, Robert G., New Castle.
Mitchell, Henry C., Edinburg.
Moore, Jesse D., New Castle.
Perry, Samuel W., New Castle.
Popp, James M., New Castle.
Reed, Charles A., New Castle.
Sankey, Brant E., New Castle.
Shaffer, Thomas M., New Castle.
Smyser, Charles J., New Wilmington.
Snyder, Ernest Ulysses, 108 N. Mercer St., New Castle.
Steen, William L., New Castle.
Trainor, Charles Edwin, New Castle.
Tucker, John D., New Castle.
Urey, Frank F., 208 Liberty St., New Castle.
Urmson, Allan W., New Castle.
Vosler, David C., Ellwood City.
Wagner, Frederick M., Wampum.
Wagner, Victor C., New Castle.
Wallace, Robert A., New Castle.
Williams, Thomas V., New Castle.
Wilson, Harry R., New Castle.
Wilson, Loyal W., New Castle.
Womer, William A., New Castle.
Zerner, H. Elmore, New Castle.

LEBANON COUNTY SOCIETY

(Organized March, 1847.)

President...Walter H. Brubaker, Lebanon.

V. Pres.....Seth Light, 604 Cumberland St., Lebanon.

Secretary...Charles M. Strickler, Lebanon.

Treasurer...Harvey E. Maulfair, Lebanon.

Reporter....G. R. Pretz, 815 Lehman St., Lebanon.

Censors.....William M. Guilford, Lebanon.
William R. Roedel, Lebanon.
John C. Bucher, Lebanon.

Committee on Public Policy and Legislation:
Samuel P. Heilman, Lebanon.
William M. Guilford, Lebanon.
S. Z. Shope, 610 N. 3d St., Harrisburg.
Warren F. Klein, Lebanon.
David S. Bordner, Palmyra.

Stated meetings the second Tuesday of each month at 2:30 p. m., Grand Jury Room, Courthouse, Lebanon. Election of officers in January.

MEMBERS (28)

Bashore, Simeon D., Palmyra.
Beattie,, John, 4th and Cumberland Sts, Lebanon.
Beckley, Joseph R., Lebanon.
Bordner, David Stanton, Palmyra.
Brubaker, Walter H., Lebanon.
Bucher, John C., Lebanon.
Gingrich, Edward H., 511 Cumberland St., Lebanon.
Guilford, William M., Lebanon.
Heilman, Samuel P., Lebanon.
Kerr, J. DeWitt, Lebanon.
Klein, Warren F., Lebanon.
Kurr, Thomas A., Fredericksburg.
Light, John J., Lebanon.
Light, Seth A., 604 Cumberland St., Lebanon.
Marshall, John E., Lebanon.
Maulfair, Harvey E., Lebanon.
Pretz, George R., 815 Lehman St., Lebanon.
Rank, David M., Annville.
Reiter, Albert S., Myerstown.
Roedel, William R., Lebanon.
Rutherford, F. A., 728 Willow St., Lebanon.
Saylor, Clyde J., Lebanon.
Shope, Samuel Z., 610 N. Third St., Harrisburg (Dauphin Co.).

Strickler, Charles M., Lebanon.
Walter, John, Lebanon.
Weiss, Alfred S., 630 Chestnut St., Lebanon.
Witmer, Frank B., Lebanon.
Zimmerman, Frank D., Schaefferstown.

LEHIGH COUNTY SOCIETY

(Organized 1850.)

(Allentown is the postoffice when street address only is given.)

President...Harry J. S. Keim, Catasauqua.

V. Pres.....Robert L. Schaeffer, 30 N. Eighth St.
Wm. A. Hausman, Jr., 1116 Hamilton St.

Secretary...J. Treichler Butz, 304 N. Ninth St.

Treasurer...Willard D. Kline, 24 N. Eighth St.

Reporter....Thomas H. Weaber, 211 N. Eighth St.

Librarian....Roderick E. Albright, 135 S. Fifth St.

Censors.....Martin J. Backenstoe, Emaus.
Forrest G. Schaeffer, 143 N. Eighth St.
Frederick R. Bausch, 109 N. Second St.

Committee on Public Policy and Legislation:
William H. Hartzell, 22 N. Eighth St.
George F., Seiberling, 956 Hamilton St.
Alvin J. Kern, Slatington.

Stated meetings at the Administration Building, South Penn St., Allentown, on the second Tuesday of each month at 2:30 p. m. Election of officers in January.

MEMBERS (96)

Albright, Roderick E., 135 S. Fifth St.
Arner, Quintin D., 18 S. Thirteenth St.
Bachman, Wilbur A., South Allentown.
Backenstoe, Martin J., Emaus.
Backenstoe, William A., Emaus.
Bausch, Frederick R., 109 N. Second St.
Bean, Harvey F., Mountainville.
Boyer, Frank S., 16 N. Second St.
Boyer, George H., 528 N. Sixth St.
Brady, Walter C., Slatedale.
Butz, J. Treichler, 304 N. Ninth St.
Butz, Warren H., Allentown, R. D. 6.
Deibert, George S., Allentown, R. D. 3.
Dickenshied, Eugene H., 1030 Walnut St.
Diefenderfer, Alan L., Slatington.
Eckert, John T., 438 N. Sixth St.
Erdman, Howard B., Macungie.
Erdman, J. Dallas, 728 N. Seventh St.
Erdman, William B., Macungie.
Eshbach, William W., 520 Union St.
Feldhoff, Edward W., 1224 Turner St.
Fetherolf, Abraham P., 1040 Hamilton St.
Fetherolf, Frederick A., 941 Hamilton St.
Fetherolf, William J., Steinsville.
Fogel, Solon C. B., 36 N. Twelfth St.
Gangeware, Victor, Rittersville.
Gearhart, Ethan J., 547 N. First St.
Gerberich, Arthur F., Limeport.
Guth, Nathaniel C. E., 527 Liberty St.
Haas, Milton J., 1353 Chew St.
Haff, Charles A., 2006 Washington Ave., Northampton (Northampton Co.).
Hartzell, William H., 22 N. Eighth St.
Hausman, William A., Jr., 1116 Hamilton St.
Hendricks, Augustus W., 453 N. Sixth St.
Henry, Charles O., 102 N. Tenth St.
Herbst, William Frederick, 28 N. Fifth St.
Hertz, William J., 125 N. Eighth St.
Holben, Franklin J., Schnecksville.
Hornbeck, James L., Catasauqua.
Huebner, Irwin F., 802 Walnut St.
Jenkins, William S., 116 N. Second St.
Jordan, Henry D., 544 N. Sixth St.
Keim, Harry J. S., Catasauqua.
Kern, Alvin J., Slatington.
Kern, Harrison B., Slatington.
King, Robert C., Hellertown (Northampton Co.).
Kistler, Jesse G., 1615 Chew St.
Kistler, Nelson F., 206 N. Ninth St.
Kleckner, Martin S., 202 N. Eighth St.
Kline, M. J., Stettlersville.
Kline, Willard D., 24 N. Eighth St.
Klingaman, Harry E., Emaus.
Kress, Palmer J., 24 S. Seventh St.
LaBarre, Louis C., 936 Hamilton St.
Lawall, Griffith S., 534 N. Sixth St.
Lear, John, 1036 Hamilton St.
Long, Frank H., Coopersburg.
Lowright, James Harvey, Center Valley.
Lowright, Wallace J., Center Valley.
McAvoy, Jeremiah F., Catasauqua.
Masonheimer, William C., 130 N. Seventh St.
Matz, John D., 26 S. Seventh St.
Mickley, Howard P., Neffs.
Miller, Albert N., East Texas.
Miller, Mahlon G., Siegfried (Northampton Co.).
Minner, J. Edwin S., Egypt.
Mohr, Eugene H., Alburtis.
Muschlitz, Charles H., Slatington.
Otto, Calvin J., 130 N. Seventh St.
Parmet, David H., 309 N. Second St.
Paul, James H., Laceyville (Wyoming Co.).
Peters, Nathaniel C., Cementon.
Peters, R. Cornelius, 406 N. Eighth St.
Price, John B., 1036 Hamilton St.
Quinn, Sydney A., 753 N. Sixth St.
Reitz, Charles B., Allentown State Hospital.
Rieche, Otto C., Seager Bldg., Hazleton (Luzerne Co.).
Riegel, William A., Catasauqua.
Ritter, Hope T. M., 101 N. Eleventh St.
Schaeffer, Charles D., 28 N. Eighth St.
Schaeffer, Forrest G., 143 N. Eighth St.
Schaeffer, Robert L., 30 N. Eighth St.
Schatz, William J., 1049 Liberty St.
Scheirer, Franklin B., 402 N. Sixth St.
Schlesman, Charles H., 216 N. Seventh St.
Seiberling, Fred C., 945 Walnut St.
Seiberling, George F., 956 Hamilton St.
Smyth, Thomas L., 430 N. Second St.
Sowden, Edgar L., Slatedale.
Trexler, William B. Fullerton.
Troxell, William C., 502 N. Second St.
Weaber, Thomas H., 211 N. Eighth St.
Weaver, Aaron D., Old Zionsville.
Weaver, Joseph M., 48 S. Tenth St.
Weida, Isadore J., Emaus.
Wentz, Frank R., 245 N. Ninth St.

LUZERNE COUNTY SOCIETY

(Organized March 4, 1861.)

(Wilkes-Barre is the postoffice when street address only is given.)

President...Elmer L. Meyers, 239 S. Franklin St.

V. Pres.....Harry M. Keller, Hazleton.

Secretary...Malcolm C. Guthrie, 109 S. Franklin St.

Fin. Sec.....M. C. Rumbaugh, 618 Wyoming Ave., Kingston.

Treasurer...Ernest U. Buckman, 70 S. Franklin St.

Censors.....August Trapold, 239 S. Washington St., 3 yrs.
A. Burton Smith, Wyoming, 2 yrs.
J. E. Scheifly, 284 Wyoming Ave., Kingston, 1 yr.

Directors...D. G. Robinhold, 1170 Wyoming Ave., Kingston, 3 yrs.
W. S. Stewart, 98 S. Franklin St., 2 yrs.
S. P. Mengel, 181 S. Franklin St., 1 yr.

Committee on House:
J. T. Howell, 84 N. Main St.
H. B. Wilcox, Kingston.
S. L. Freeman, 26 W. Ross St.

Committee on Library:
L. H. Taylor, 83 S. Franklin St.
Delbert Barney, 55 N. Washington St.
E. W. Bixby, 61 W. Ross St.

Committee on Public Health:
C. H. Miner, 115 S. Franklin St.
A. T. McClintock, 73 W. Northampton St.
J. J. Kocyan, Plains.

Committee on Program:
H. B. Gibby, 96 S. Franklin St., 1 yr.
L. L. Rogers, Jr., Kingston, 2 yrs.

Committee on Practice of Medicine and Surgery:
M. B. Ahlborn, 99 N. Franklin St.
P. P. Mayock, 68 S. Main St.
John Howorth, 17 E. North St.

Auditing Committee:
George L. Hoffman, Kingston.
W. C. Stiff, Plymouth.

Stated meetings in Society's Building, South Franklin Street, Wilkes-Barre, first and third Wednesdays of each month at 8:30 p. m. Election of officers last meeting in December.

MEMBERS (194)

Adams, Erick A., 259 Dana St.
Ahlborn, Maurice B., 99 N. Franklin St.
Alexaitis, Francis L., 363 E. South St.
Andreas, George R., 204 E. South St.
Ashley, Charles L., Plymouth.
Baird, Thompson M., 246 Scott St.
Baker, G. E., Forty Fort.
Barney, Delbert, 55 N. Washington St.
Barton, A. Arthur, Plains.
Beaver, James R., 40 Luzerne Ave., West Pittston.
Becker, Conrad J., 679 Hazle St.
Bennett, Clarence E., Nanticoke.
Berge, William H., Avoca.
Biehl, Jefferson P., 34 Center Ave., Plymouth.
Bixby, Edward W., 61 W. Ross St.
Blair, Lovisa Ida, 342 S. River St.
Briggs, Miron L., Shickshinny.
Brooks, Allan C., 84 N. Franklin St.
Brooks, James, Main St., Plains.
Brosius, Peter F., Hazleton.
Brown, Harry A., Lehman.
Buckley, Ralph Emerson, 143 N. Church St., Hazleton.
Buckman, Ernest U., 70 S. Franklin St.
Burkhardt, George F., 109 S. Cedar St., Hazleton.
Burns, John R., 249 Chapel St., Luzerne.
Caffrey, Anthony J., 239 S. Washington St.
Carr, George W., 30 S. Franklin St.
Carter, William S., 15 W. Broad St., Hazleton.
Clark, George A., 326 S. Main St.
Connole, John F., 107 E. Main St., Plymouth.
Cook, Benjamin B., Wapwallopen.
Corrigan, John J., 336 W. Broad St., Hazleton.
Corrigan, William H., 141 S. Washington St.
Costello, Edmund A., 695 E. Northampton St.
Creasy, Raymond C., 71 S. Washington St.
Cressler, John Webster, 152 Hanover St.
Cuozzo, James A., Hazleton.
Dailey, Thomas J., 15½ Main St., Plymouth.
Daley, Daniel F., 214 Chestnut St., Kingston.
Danzer, William F., 226 W. Broad St., Hazleton.
Davis, Walter, 24 S. Washington St.
Davis, William J., 225 Barney St.
Davison, William F., Kingston.
Deibel, Henry W., 119 Academy St.
Dessen, Louis A., 26 W. Diamond Ave., Hazleton.
Dickinson, Charles S., Freeland.
Dinkelspeil, Max R., 26 S. Franklin St.
Dodson, Boyd, 186 Dana St.
Dodson, Daniel W., Nanticoke.
Doolittle, Edgar B., Hazleton.
Dougherty, Edward S., 41 N. Main St., Ashley.
Dougherty, Joseph P., 9 Ashley St., Ashley.
Doyle, William J., 553 Hazel St.
Drake, George R., Plymouth.
Dreibelbies, Wilmer Clayton, 29 Carey Ave.
Dyson, John R., 22 N. Church St., Hazleton.
Edwards, Lewis, 790 Market St., Kingston.
Edwards, Vivian P., 535 Main St., Kingston.
Ernst, Charles H., 55 Hanover St.
Everett, Shem A., Freeland.
Fabian, Andrew A., Larksville, Plymouth.
Farrar, John K., Audenried (Carbon Co.).
Fischer, Herman A., 311 S. Washington St.
Fleming, John C., Dallas.
Fleming, Thomas F., Pittston.
Foss, Walter B., 36 N. Main St., Ashley.
Foster, Alfred E., 271 Barney St.
Freeman, Stanley L., 26 W. Ross St.
Gaughan, Martin C., Pittston.
Geist, James W., 529 S. Franklin St.
Gibby, Harold J., St. Luke's Hosp., Cathedral Heights, New York, N. Y.
Gibby, Herbert B., 96 S. Franklin St.
Gilligan, James P., 359 Scott St.
Griffith, Morgan E., 528 Carey Ave.
Griswold, C. L., 127 Espy St., Nanticoke.
Groblewski, Casimir C., 20 Elm St., Plymouth.
Grover, Alfred Woodward, 256 Maple St., Kingston.
Guthrie, Malcolm C., 109 S. Franklin St.
Hanlon, Edward F., 158 N. Wyoming St., Hazleton.
Harrington, George W., 544 N. Vine St., Hazleton.
Hartman, William L., Pittston.
Hauslohner, Austin L., 32 N. Washington St.
Hepler, Alex B., U. S. Navy, Washington, D. C.
Heyer, Edward G., Nanticoke.
Heyer, Frederick W., Nanticoke.
Hinrichs, August G., Pittston.
Hislop, John J., Miners Mills.
Hoffman, George L., 1110 Wyoming Ave., Kingston.
Howell, John T., 84 N. Main St.
Howorth, John, 17 E. North St.
Huebner, Dewees A., Fern Glen.
Hughes, Willet E., Ashley.
Jacobsky, Cyrus, 211 S. Main St.
James, Uriah A., Pittston.
Jamison, Peter H., Nescopeck.
Jennings, Joseph A., Pittston.
Kaufman, Albert, 51 N. Washington St.
Keller, Harry M., Hazleton.
Kingsbury, Dana W., Nanticoke.
Kirschner, John W., 63 Main St., Luzerne.
Kistler, Oliver F., 43 N. Franklin St.
Knapp, Charles P., 270 Wyoming Ave., Wyoming.
Kocyan, Joseph J., Plains.
Koons, Robert O., Conyngham.
Kosek, Frank J., 447 N. Main St.
Krajewski, Frank J., 61 N. Washington St.
Krych, Felix J., 285 Main St., Kingston.
Laing, Henry M., Dallas.
Lake, David H., 137 Maple St., Kingston.
Lance, Ruth Mitchell, 44 Reynolds St., Kingston.
Lathrop, Walter, Hazleton.
Lavin, John L., 37 Perrin St., Swoyersville.
Lenahan, Hugh J., 10 Charles St., Pittston.
Long, Charles, 33 S. Washington St.
McClintock, Andrew T., 73 W. Northampton St.
McConnon, George H., 246 E. Northampton St.
McGuire, William J., 357 E. South St.
McHugh, John J., Parsons.
McLaughlin, Patrick A., 1906 Sansom St., Philadelphia.
McLaughlin, Thomas V., 68 Washington St.

MacKellar, James, Hazleton.
Mahon, John B., Pittston.
Marvin, Merton E., 19 Main St., Luzerne.
Matlack, Granville T., 33 W. Northampton St.
Mayock, Peter P., 68 S. Main St.
Meixell, Edwin W., 25 W. Ross St.
Mengel, Samuel P., 181 S. Franklin St.
Meyers, Elmer L., 239 S. Franklin St.
Miner, Charles H., 115 S. Franklin St.
Molinelli, John H., Pittston.
Moore, Charles E., Alden Station.
Morgan, Aston H., 361 E. Market St.
Mundy, Leo C., 400 Scott St.
Murray, Michael A., 243 S. Washington St.
Myers, N. Ray, Wanamie.
Neale, Henry M., Upper Lehigh.
Nealon, James M., Plymouth.
Newth, John H., Pittston.
Nicholson, Charles E., Pittston.
Norstedt, J. Albert, 34 W. Broad St., Nanticoke.
Nurse, Charles T. C., 107 Hickory St.
Phillips, C. H., 130 S. Franklin St.
Prevost, Clarence W., Pittston.
Redelin, Albert Augustus, Freeland.
Reese, William C., 21 W. Ross St.
Richards, Emrys, 173½ N. Main St.
Robinhold, Daniel G., 1170 Wyoming Ave., Kingston.
Roderick, Edward R., 92 S. Franklin St.
Roe, J. Irving, 317 S. River St.
Rogers, Lewis Leonidas, 268-270 Wyoming Ave., Kingston.
Rogers, Lewis Leonidas, Jr., 268-270 Wyoming Ave., Kingston.
Ross, Nathaniel, 141 Hanover St.
Rubenstein, Harry, Pittston.
Rumbaugh, Marshall Cloyd, 618 Wyoming Ave., Kingston.
Rynkiewicz, Stanley H., 449 Main St., Kingston.
Schappert, N. Louis, 57 S. Washington St.
Scheifly, John E., 284 Wyoming Ave., Kingston.
Shafer, Charles Layton, 219 College Ave., Kingston.
Sheridan, Lawrence A., 421 N. Main St.
Sickler, Parke C., 90 Academy St.
Smith, A. Burton, Wyoming.
Smith, Lawrence H., Hazleton.
Smith, W. Clive, 132 S. Franklin St.
Stewart, Walter S., 98 S. Franklin St.
Stiff, William Clifton, Plymouth.
Stoeckel, Louise M., N. Franklin and Union Sts.
Storz, John C., Luzerne.
Stricker, William B., Nanticoke.
Summa, Frank Paul, 111 S. Market St., Nanticoke.
Taylor, Lewis H., 83 S. Franklin St.
Taylor, Richard P., 55 S. Washington St.
Templeton, Harry G., Plymouth.
Thomas, Frank D., 777 Wyoming Ave., Kingston.
Thompson, James R., Pittston.
Thompson, Lawrence M., Kingston.
Tobias, John B., 305 E. Northampton St.
Trapold, August, 239 S. Washington St.
Tressler, Charles W., Shickshinny.
Truckenmiller, Roy, Freeland.
Underwood, Sanford L., 5½ Water St., Pittston.
Wadhams, Raymond L., 72 N. Franklin St.
Wagner, Earl E., 207 Parrish St.
Wagner, Edward C. O., 125 S. Washington St.
Waters, William W., Nanticoke.
Wetherby, Della P., 69 W. Union St.
Whitney, Harry LeRoy, Plymouth.
Wilcox, Homer B., 165 Maple St., Kingston.
Williams, Evan, Sugar Notch.
Williams, James T., 63 S. Washington St.
Woehrle, Robert S., 403 George Ave., Parsons.
Wolfe, Samuel M., 218 S. Franklin St.
Wood, Walter F., White Haven.
Wyckoff, Sarah Delia, 68 W. South St.
Yeager, Clark Harvey, 5 Main St.

LYCOMING COUNTY SOCIETY

(Organized 1849.)

(Williamsport is the postoffice when street address only is given.)

President...C. E. Heller, 221 E. Third St.
V. Pres.....Robert K. Rewalt, 25 W. Third St.
Secretary...Robert F. Trainer, 310 Elmira St.
Treasurer...John P. Harley, 106 E. Fourth St.
Rept. and Librarian...Wesley F. Kunkle, 519 Seventh Ave.
Censors.....H. G. McCormick, 430 W. Fourth St.
C. W. Youngman, 601 Pine St.
G. Franklin Bell, Newberry.
E. Lyon, 24 W. Fourth St.
John A. Klump, 331 Elmira St.
Trustees....Charles E. Heller, 221 E. Third St.
Robert F. Trainer, 310 Elmira St.
Alem P. Hull, Montgomery.
John P. Harley, 106 E. Fourth St.
Committee on Public Policy and Legislation:
C. W. Youngman, 601 Pine St.
Robert F. Trainer, 310 Elmira St.
Harry J. Donaldson, 106 E. Fourth St.
G. T. Ritter, First Nat. Bank Bldg.

Stated meetings at City Hospital, Williamsport, second Friday of each month at 2 p. m. Annual meeting in January.

MEMBERS (100)

Adams, Charles M., 1025 W. Fourth St.
Adams, F. Raymond, Watsontown (Northum. Co.).
Albright, Joseph W., Muncy.
Bastian, Charles B., 48 W. Fourth St.
Beach, John D., 223 Market St.
Bell, G. Franklin, 821 Diamond St., Newberry Sta.
Bingaman, Charles E., Palmerton (Carbon Co.).
Born, Reuben H., Montoursville.
Brenholtz, William S., 215 E. Third St.
Brown, John C., 35 W. Fourth St.
Campbell, John A., 831 Funston Ave., Newberry Sta.
Castlebury, Alzine M., 945 Campbell St.
Castlebury, Frank Fullmer, Roaring Branch.
Castlebury, G. D., Ralston.
Chaapel, Victor P., 2017 W. 4th St., Newberry Sta.
Clinger, Joseph A., Milton (Northum. Co.).
Cummings, Charles J., 755 W. Fourth St.
Davis, George C., Milton (Northumberland Co.).
Delaney, William E., 942 W. Third St.
Derr, Joseph L., Lairdsville.
Derr, Woods F., 42 W. Fourth St.
Donaldson, Harry J., 106 E. Fourth St.
Drick, George R., 106 E. Fourth St.
Dye, Adelbert D., Masten.
Essick, Howard M., Box 85, Sunbury (Northum. Co.).
Everett, Edward, Milville (Columbia Co.).
Follmer, William H., 323 Elmira St.
Fulmer, Joseph Cleveland, Woodmere, Evansville, Ind.
Gilmore, Irwin T., Picture Rocks.
Glosser, William E., 440 Market St.
Goodman, Lee M., Jersey Shore.
Gordner, J. Frank, Montgomery.
Hardt, Albert F., 414 Pine St.
Harley, John P., 106 E. Fourth St.
Haskin, Herbert P., 324 High St.
Hayes, Charles G., Montoursville.
Hayes, Randall B., 1225 Allegheny St., Jersey Shore.
Heller, Charles E., 221 E. Third St.
Hull, Alem P., Montgomery.
Hull, Elmer S., Montgomery.
King, William L., Muncy.
Klump, George B., 430 Pine St.
Klump, John A., 331 Elmira St.
Konkle, W. Bastian, Montoursville.
Kunkle, Wesley F., 519 Seventh Ave.

Lamade, Albert C., 42 E. Fourth St.
Langley, Louis Elsworth, 3 W. Third St., Newberry Sta.
Lehman, Charles A., 831 Diamond St.
Logue, J. Gibson, 342 W. Fourth St.
Logue, William P., 240 Pine St.
Lyon, Edward, 24 W. Fourth St.
McCormick, Horace G., 430 W. Fourth St.
Mansuy, J. Louis, Ralston.
Marsh, William G., Watsontown (Northum. Co.).
Mench, Martin L., Jersey Shore.
Metzger, George W., Hughesville.
Miller, William H., 18 E. Third St.
Milnor, Robert H., Warrensville.
Mohn, Charles L., Jersey Shore.
Mosher, James S., Hillsgrove (Sullivan Co.).
Nevling, Ferdinand S., Clearfield (Clearfield Co.).
Norris, Franklin J., 131 Southern Ave., South Williamsport.
Nutt, John B., 440 Pine St.
Poust, G. Alvin, Hughesville.
Rank, Lee Russell, Milton (Northum. Co.).
Raper, Thomas W., 602 Pine St.
Reilly, Peter C., 229 Market St.
Rewalt, Robert K., First Nat. Bank Bldg.
Reynolds, Walter B., Nashville, N. C.
Ritter, Ella N., 1211 W. Fourth St.
Ritter, George T., First National Bank Bldg.
Ritter, H. Murray, First National Bank Bldg.
Ritter, James W., Jersey Shore.
Rote, William H., 51 W. Third St.
Sanford, Frederick G., Jersey Shore.
Schaefer, J. Elmer, Cogan Station.
Schneider, Charles, 1501 Southern Ave., South Williamsport.
Schneider, George L., 16 W. Third St.
Senn, Carl H., 443 Market St.
Senn, John, 247 Washington St.
Senn, Walter W., 431 Washington St.
Shaw, Clarence E., 37 W. Fourth St.
Shindel, William L., Sunbury (Northum. Co.).
Shuman, Warren N., Jersey Shore.
Steans, Ralph, Lewisburg (Union Co.).
Strait, Barbara Kuntz, 817 Main St., Penn Yan, N. Y.
Stroble, Walter G., Liberty (Tioga Co.).
Trainer, Robert F., 310 Elmira St.
Troutman, George C., 410 Third Ave.
Tule, R. Bruce, Milton (Northumberland Co.).
VanHorn, James W., Montoursville.
Voorhees, Charles D., Hughesville.
Wackenhuth, Charles F., Picture Rocks.
Webster, J. Grant, Wellsboro (Tioga Co.).
Weigle, Henry S., Muncy.
Welker, Abraham T., Collomsville.
Wood, T. Kenneth, Muncy.
Wright, Louis W., 3 W. Third St.
Wurster, Lloyd E., Montoursville.
Youngman, Charles W., 601 Pine St.

MC KEAN COUNTY SOCIETY

(Organized June 18, 1880.)

President...William C. Hogan, Bradford.
V. Pres.....James B. Stewart, Bradford.
Sec., Treas. and Rept..James Johnston, Bradford.
Censors.....Bret H. Hall, Bradford.
Harris A. Canfield, Bradford.
Henry L. McCoy, Smethport.
Committee on Public Policy and Legislation:

Stated meetings at place selected the first Tuesday of each month. Election of officers in January.

MEMBERS (46)

Ash, Garrett G., Bradford.
Benninghoff, George E., Bradford.
Canfield, Harris A., Bradford.
Chadwick, Burg, Smethport.
Clark, John, Smethport.
Cleveland, Howard Martin, Mt. Jewett.
Cox, Milo W., Kane.
Cummings, George M., Betula.
Dana, Lawrence W., Kane.
Eaman, Howard K., Hazel Hurst.
Egbert, Rufus A., Custer City.
Elliott, Charles F., 11 Main St., Bradford.
Fredericks, William J., Bradford.
Glenn, Thomas O., Bradford.
Haines, Samuel H., Bradford.
Hall, Bret H., Bradford.
Hamilton, Robert, Smethport.
Hannum, Oscar S., Custer City.
Hayes, Mary J., Kane.
Heimbach, James M., Kane.
Hogan, William C., Bradford.
Johnson, Frederick C., Mont Alto (Franklin Co.).
Johnston, James, Bradford.
Joseph, Louis Daniel, Bradford.
Kane, Evan O., Kane.
Kane, Thomas L., Kane.
Kunkel, Oscar F., Bells Camp.
McCoy, Henry L., Smethport.
McGraner, W. J., Port Allegany.
McLean, Earle McCormack, Eldred.
Monagan, William H., Mt. Alton.
Moyer, Walter S., Rixford.
Nichols, Henry James, Bradford.
Ostrander, William A., Smethport.
Otto, James V., Port Allegany.
Paton, Fred Wade, Bradford.
Robinson, Joseph H., Bradford.
Russell, Reister K., Bradford.
Stewart, James B., Bradford.
Straight, Persis Rosamond, Bradford.
VanSlyke, Allan A., Mt. Jewett.
White, Benjamin Franklin, Jr., Bradford.
Wilson, Homer A., Duke Center.
Winger, Frederick W., Bradford.
Winslow, Harry Charles, Norwich.
Woodhead, H. Irvin, Bradford.

MERCER COUNTY SOCIETY

(Organized 1848.)

President...B. Edwin Mossman, Jr., Greenville.
V. Pres.....William W. Richardson, Mercer.
George W. Kennedy, Sharon.
Sec.-Rept. and Treas..Frank Bleakney, Grove City.
Censors.....B. Edwin Mossman, Jr., Greenville, 3 yrs.
John H. Twitmyer, Sharpsville, 2 yrs.
Clifford Marshall, Sharon, 1 yr.
Committee on Public Policy and Legislation:
John M. Martin, Grove City.
Clarence W. McElhaney, Greenville.
William W. Richardson, Mercer.

Stated meetings second Thursday in January, March, May, July, September and November at such place as society shall direct. Election of officers in January.

MEMBERS (66)

Armstrong, Henry, Sharon.
Bachop, John C., Sheakleyville.
Bailey, Carl, Jamestown.
Bakewell, Frank S., Greenville.
Barnes, Matthew A., Pardoe.
Batteiger, Frederick O., Greenville.

Biggins, Patrick E., Sharpsville.
Bleakney, Frank, Grove City.
Breene, Lawrence N., Farrell.
Brown, David A., Greenville.
Brown, Robert W., Greenville.
Campbell, Watson E., Sharon.
Cattron, Addison E., Sharpsville.
Cheesman, John C., Grove City.
Cooley, Judson, Sandy Lake.
Doyle, Joseph A., Greenville.
Elliott, John W., Sharon.
Ferringer, John E., Stoneboro.
Fisher, Philip P., Sharon.
Frye, Benjamin A., Sharpsville.
Hanna, David B., Stoneboro.
Heilman, Salem, Sharon.
Hodge-Worrall, Emma, Greenville.
Hoffman, James D., Grove City.
Hogue, Thomas F., Fredonia.
Hoon, Anthony I., Mercer.
Hope, Paul T., Mercer.
Hope, Robert M., Mercer.
Hunter, John A., West Middlesex.
Hyde, Allan P., Sharon.
Jones, Orlando A., Sharon.
Kennedy, George W., Sharon.
Kusmin, Harry, Farrell.
Lewis, William Marks, Sharon.
Livingston, S. B., West Middlesex.
MacBride, Martha Edith, St. Vincent's Hosp., Erie (Erie Co.).
McClelland, James H., Grove City.
McConnell, Edwin M., Grove City.
McElhaney, Clearence W., Greenville.
McKinstry, Guy H., 8 Center Av., Aspinwall (Alle.Co.)
Marshall, Clifford, Sharon.
Martin, John H., Greenville.
Martin, John M., Grove City.
Matta, Florence B., Brownsville (Fayette Co.).
Mehler, Carl J., Sharon.
Mitchell, Andrew J., Sharon.
Mitchell, Thomas H., Jamestown.
Montgomery, Beriah A., Grove City.
Mossman, B. Edwin, Jr., Greenville.
Mossman, Beriah E., Greenville.
O'Brien, Augustus M., State St., Sharon.
Parks, Arthur A., Fredonia.
Phillips, William H., Greenville.
Reed, Joseph H., Sharon.
Richardson, William W., Mercer.
Rickenbrode, Charles O., Farrell.
Tidd, Ralph M., Clark.
Twitmyer, John H., Sharpsville.
Walker, Charles I., Sharon.
Washabaugh, David J., Grove City.
Weidman, J. Clayton, Mercer.
White, Harry, Sharon.
Williams, Charles B., Sharon.
Wilson, Homer S., Grove City.
Wyant, William W., Farrell.
Yeager, M. George, Mercer.

MIFFLIN COUNTY SOCIETY

(Organized March 4, 1874.)

President...Benjamin R. Kohler, Reedsville.
V. Pres.....Samuel W. Swigart, Lewistown.
Silas M. Hazlett, Allensville.
Sec. and Librarian....James A. C. Clarkson, Lewistown.
Treasurer...A. S. Harshberger, Lewistown.
Reporter....Paul M. Allis, Lewistown.
Censors.....Walter S. Wilson, Lewistown.
Walter H. Parcels, Lewistown.
Charles H. Brisbin, Lewistown.

Committee on Public Policy and Legislation:
A. S. Harshberger, Lewistown.
Hugh S. Alexander, Belleville.
Samuel H. Rothrock, Reedsville.
Henry W. Sweigart, Lewistown.
Silas M. Hazlett, Allensville.
Samuel J. Boyer, Milroy.

Stated meetings in Lewistown or elsewhere as may be selected, on the first Thursday of each month. Election of officers in December.

MEMBERS (30)

Alexander, Hugh S., Belleville.
Allis, Paul M., Lewistown.
Allison, Elizabeth, Madison, Wis.
Baker, William M., Lewistown.
Barnett, Robert T., Lewistown.
Boyer, Samuel J., Milroy.
Brisbin, Charles H., Lewistown.
Campbell, Marsden D., Belleville.
Clarkson, James A. C., Lewistown.
Getter, John P., Belleville.
Harshberger, Alexander S., Lewistown.
Hazlett, Silas M., Allensville.
Hunter, John R. W., Lewistown.
Johnson, Charles M., McVeytown.
Johnson, Richard M., McVeytown.
Kohler, Benjamin R., Reedsville.
Kohler, William H., Milroy.
McKim, Vincent I., Burnham.
Miller, Henry E., McAlevys Fort (Hunt Co.).
Mitchell, James W., Lewistown.
Morrow, J. Robert, Newton Hamilton.
Parcels, Walter H., Lewistown.
Rothrock, Samuel H., Reedsville.
Rupp, Frederick A., Lewistown.
Smith, Thomas H., Burnham.
Stambaugh, Charles J., Reedsville.
Steele, Bruce P., McVeytown.
Sweigart, Henry W., Lewistown.
Swigart, Samuel W., Lewistown.
Wilson, Walter S., Lewistown.

MONROE COUNTY SOCIETY

(Organized Nov. 24, 1902.)

President...Walter L. Angle, East Stroudsburg.
V. Pres.....C. S. Flagler, 624 Main St., Stroudsburg.
Secretary...Esther W. Gulick, Stroudsburg.
Treasurer...J. Anson Singer, East Stroudsburg.
Reporter....William E. Gregory, Stroudsburg.
Censors.....Walter L. Angle, East Stroudsburg, 2 yrs.
Alvin A. Wertman, Tannersville, 1 yr.

Committee on Public Policy and Legislation:
J. Anson Singer, East Stroudsburg.

Regular meetings held at 520 Main St. (Dr. Gulick's residence), Stroudsburg, the second Wednesday in each month, at 8 p. m., annual meeting in January.

MEMBERS (22)

Angle, Walter L., East Stroudsburg.
Flagler, Charles S., 624 Main St., Stroudsburg.
Gregory, William E., Stroudsburg.
Gulick, Esther W., 520 Main St., Stroudsburg.
Hagenbauch, Phoebe H. F., Stroudsburg.
Hagerman, John A., Sciota.
Henry, John C., East Stroudsburg.
Levering, Eugene H., Stroudsburg.
Levering, William R., Stroudsburg.
Logan, Charles Shaw, Stroudsburg.
Longacre, Elsie U. L., Tannersville.
Miller, Joseph F., Stroudsburg.

Ritter, Frederick William, Tannersville.
Rosenkrans, Carl B., East Stroudsburg.
Shupp, Eugene A., Kunkletown.
Singer, J. Anson, East Stroudsburg.
Smith, Louis B., Bushkill (Pike Co.).
Stearns, John Henry, Delaware Water Gap.
Stotz, Joseph A., Brodheadsville.
Trach, David C., Kresgeville.
Van Etten, Harry S., Stroudsburg.
Wertman, Alvin A., Tannersville.

MONTGOMERY COUNTY SOCIETY

(Organized January, 1847.)

President...Herbert A. Bostock, Norristown.
V. Pres.....William B. Jameson, Jenkintown.
Joseph H. Cloud, Box 484, Ardmore.
Secretary...Edgar S. Buyers, Norristown.
Cor. Sec. and Rept. Benjamin F. Hubley, Norristown.
Treasurer...William G. Miller, Norristown.
Censors.....Charles H. Mann, Bridgeport.
Percy H. Corson, Plymouth Meeting.
George F. Hartman, Port Kennedy.

Committee on Public Policy and Legislation:
Joseph K. Weaver, Norristown.
Oliver C. Heffner, Pottstown.
George W. Stein, Norristown.

Library Committee:
J. Lawrence D. Eisenberg, Norristown.
Winfred J. Wright, Skippack.
George R. Irwin, Bridgeport.

Editors of Bulletin:
Willis Read Roberts, Norristown.
Frank C. Parker, Norristown.
George W. Miller, Norristown.

Stated meetings in Charity Hospital, Norristown, at 2:30 p. m., on the first and third Wednesdays of every month, excepting July and August. Election of officers in January.

MEMBERS (133)

Allebach, Newton G., Souderton.
Allen, Frederick B., North Wales.
Anders, Warren Z., Trappe.
Arnold, Herbert A., Ardmore.
Baggs, Albert M., Abington.
Bauman, J. Warren, Lansdale.
Benner, Ervin F., Salfordville.
Bigony, Franklin G., Lansdale.
Blair, Walter A., Norristown.
Blanck, Joseph E., Green Lane.
Bostock, Herbert A., Norristown.
Bower, John Oscar, Wyncote.
Branson, Thomas F., Rosemont.
Brown, Joel D., 1715 N. Sixty-Second St., Philadelphia.
Bushong, Frederic, Pottstown.
Buyers, Edgar S., Norristown.
Chrystie, Walter, Bryn Mawr.
Cloud, Joseph Howard, Box 484, Ardmore.
Corson, Edward Foulk, Cynwyd.
Corson, Percy H., Plymouth Meeting.
Councill, Malcolm S., Bryn Mawr.
Cross, Samuel H., Jenkintown.
Crowe, James, Huntingdon Valley.
Dewees, A. Lovett, Haverford.
Donaldson, Albert Barnes, Bala.
Doran, Charles F., Phoenixville (Chester Co.).
Drake, Howard H., Norristown.
Easton, Flora Parker, Norristown.
Eisenberg, J. Lawrence D., Norristown.
Eisenberg, Philip Y., Norristown.
Elmer, Robert P., Wayne (Delaware Co.).
Evans, Alexander Rae, Gladwyne.
Fabbri, Remo, 354 E. Main St., Norristown.
Faries, Clarence T., Narberth.
Fordyce, DeLorme T., Conshohocken.
Galbreath, John A., 366 High St., Pottstown.
Gamble, Robert G., Haverford.
Gerhard, George S., Overbrook, Philadelphia.
Gery, Alfred O., East Greenville.
Godfrey, Andrew, Ambler.
Gotwals, John Elmer, Phoenixville (Chester Co.).
Graber, Henry, Royersford.
Graber, James D., Royersford, R. D.
Hanley, Paul D., Pottstown.
Harris, Richard H., Elkins Park.
Hartman, George F., Port Kennedy.
Harvey, John, Bryn Mawr.
Heffner, Oliver C., Pottstown.
Herman, Ambrose C., Lansdale.
Hersh, John G., East Greenville.
Highley, George N., Conshohocken.
Horning, Samuel B., Collegeville.
Hough, Charles B., Ambler.
Hubley, Benjamin F., Norristown.
Hunsberger, J. Newton, Norristown.
Hunsberger, William H., Pennsburg.
Irwin, George R., Bridgeport.
Jago, Arthur H., Ardmore.
Jameson, William B., Jenkintown.
Jenks, Horace, 918 Clinton St., Philadelphia
Keeler, Russell R., Harleysville.
Keeler, Vincent Z., Harleysville.
Kell, Elmer A., Rawlins, Wyo.
Knipe, Jacob O., Norristown.
Knipe, Reinoehl, Norristown.
Knipe, William H., Limerick.
Kriebel, Elmer G., Worcester.
Lakin, H. Pearce, Lansdale.
Landis, James C., Pennsburg.
Luders, Charles Williamson, Cynwyd.
Lukens, George T., Conshohocken.
McCracken, James A., Norristown.
McKenzie, William, Conshohocken.
MacLeod, George I., Ardmore.
Mann, Charles H., Bridgeport.
Markley, John Morris, Graterford.
Mauger, Lee F., Pottstown.
Miller, George W., Norristown.
Miller, S. Metz, State Hospital, Norristown.
Miller, William G., Norristown.
Nathan, David, Norristown.
Neiffer, Milton K., Wyncote.
Neiman, Howard Y., Pottstown.
Nicholson, Percival, Ardmore.
O'Neal, Alexander H., St. Davids (Delaware Co.).
Parker, Frank C., Norristown.
Peterson, Jessie Marie, Norristown.
Podall, Harry C., State Hospital, Norristown.
Porter, J. Elmer, Pottstown.
Powell, William C., Bryn Mawr.
Powell, William C., Jr., Bryn Mawr.
Pyfer, Howard F., Norristown.
Quinn, Elwood T., Jenkintown.
Rahn, Norman H., Souderton.
Ramsey, Frank M., Chestnut Hill.
Read, Alfred H., Norristown.
Reed, Henry D., Pottstown.
Roberts, Isaac B., Llanerch (Del. Co.).
Roberts, Willis Read, Norristown.
Rose, Clarence Atwood, Ardmore.
Roth, John A., Red Hill.
Rouse, John, Ogontz.
Ruth, Aaron L., Conshohocken.
Scholl, Harvey F., Green Lane.
Scholl, Henry Nathaniel, Kulpsville.
Seiple, J. Howard, Center Square.

Shaner, Warren B., Pottstown.
Sharpe, John S., Haverford.
Sharpless, Frederic C., Rosemont.
Sheehan, William Coronata, Bethlehem Pike, Chestnut Hill.
Simpson, John C., 15 E. Airy St., Norristown.
Slifer, Henry F., North Wales.
Smyth, Henry Field, Wayne (Delaware Co.).
Stein, George W., Norristown.
Stein, Walter Jacob, Ardmore.
Swalm, Charles J., Conshohocken.
Taylor, Marianna, St. Davids (Delaware Co.).
Thomas, J. Quincy, Conshohocken.
Toland, William Arthur, 117 High St., Pottstown.
Tunnell, Monroe H., 23 Prospect Ave., Bryn Mawr.
Tyler, Benjamin A., Royersford.
VanBuskirk, Frederick W., Pottstown.
Weaver, Joseph K., Norristown.
Weber, Mathias Y., Lower Providence.
Welker, Henry C., Norristown.
Whitman, Russell G., Conshohocken.
Wiley, S. Nelson, 905 S. Evans Ave., McKeesport (Allegheny Co.).
Wills, T. Edmund, Pottstown.
Wolfe, R. Vincent, Norristown.
Wright, Winfred J., Skippack.
Wylie, Charles R., 558 High St., Pottstown.
Yeakle, Walter A., Norristown.
Youngman, Munroe D., Ardmore.

MONTOUR COUNTY SOCIETY

(Organized June 15, 1874.)

President...Benjamin E. Bitler, Pottsgrove.
V. Pres.....Raymond J. Hauser, Danville.
George B. M. Free, Danville.
Sec.-Rep....Cameron Shultz, Danville.
Treasurer...James E. Robbins, Danville.
Censors.....Harold L. Foss, Danville, 3 yrs.
Hugh B. Meredith, Danville, 2 yrs.

Committee on Public Policy and Legislation:
P. C. Newbaker, Danville.
John H. Sandel, Danville.
G. B. M. Free, Danville.

Stated meetings in Danville the third Friday in January, March, May, June, August, October and November at 8 p. m. Election of officers in January.

MEMBERS (21)

Ashenhurst, Ida M., State Hospital, Danville.
Bitler, Benjamin E., Pottsgrove (Northum. Co.).
Chamberlain, L. R., Danville.
Foss, H. L., Danville.
Free, George B. M., State Hospital, Danville.
Gibson, Burgers A., Danville.
Hammers, James S., State Hospital, Danville.
Hauser, Raymond J., Danville.
Mayberry, Charles B., Retreat (Luzerne Co.).
Meredith, Hugh B., State Hospital, Danville.
Nebinger, Reid, Danville.
Newbaker, Philip C., Danville.
Patten, Robert Swift, Danville.
Robbins, James E., State Hospital, Danville.
Sandel, John H., Danville.
Shellenberger, Edward B., State Hospital, Danville.
Shultz, Cameron, Danville.
Snyder, John Howard, Washingtonville.
Stock, George A., White Haven (Luzerne Co.).
Struthers, John E., Danville.
Williams, Ernest T., Riverside (Northum. Co.).

NORTHAMPTON COUNTY SOCIETY

(Organized July 10, 1849.)

President...Carl F. Welden, Bethlehem.
V. Pres.....William P. O. Thomason, Easton.
Jacob A. Fraunfelder, Nazareth.
Rec. Sec....Fred. E. Ward, 1119 Ferry St., Easton.
Cor. Sec....Harvey C. Updegrove, Easton.
Treasurer...Clinton F. Stofflet, Pen Argyl.
Reporter....Walter D. Chase, Bethlehem.
Censors.....Wm. P. Walker, South Bethlehem, 1 yr.
Noah W. Reichard, Bangor, 2 yrs.
Charles Collmar, Easton, 3 yrs.

Committee on Public Policy and Legislation:
Victor S. Messinger, Easton.
William H. McIlhaney, South Easton.

Exec. Com...Carl F. Welden, Bethlehem.
F. E. Ward, Easton.
Delbert K. Santee, South Bethlehem.

Meetings shall be held at 11 a. m. on the third Friday of every month except August at such places as the society may determine by vote. Outing meeting in August.

MEMBERS (117)

Anderson, George R., Easton.
Andrew, William Earnest, Pen Argyl.
Beck, Charles E., Portland.
Beck, Richard H., Hecktown.
Beck, Senn Grim, Hecktown.
Blank, Oscar F., Bethlehem.
Bloss, Raymond H., Bethlehem.
Boyle, Patrick F., South Bethlehem.
Burkhart, Herman A., 26 S. Main St., Bethlehem.
Bush, Elmer E., Danielsville.
Butler, Thomas James, South Bethlehem.
Carroll, Thomas A., Wind Gap.
Carty, Harry B., Freemansburg.
Chambers, Francis S., Easton.
Chase, Walter D., Bethlehem.
Collmar, Charles, Easton.
Condron, James J., 362 Berwick St., Easton.
Cope, Thomas, Nazareth.
Cope, William F., Easton.
Correll, Paul R., Easton.
Dech, Elmer J., 5 N. Fourteenth St., Easton.
Dech, Schuyler H., 118 S. Third St., Easton.
Deibert, Edward J., Hellertown.
Dilliard, Benjamin F., East Bangor.
Edwards, H. Threlkeld, South Bethlehem.
Erwin, Francis H., Freemansburg.
Estes, Wm. L., 805 Delaware Ave., South Bethlehem.
Estes, William Lawrence, Jr., South Bethlehem.
Evans, E. William, Easton.
Farber, Wm. Daniel, 16-18 W. 21st St., Northampton.
Fetherolf, James Allen, Stockertown.
Field, Benjamin Rush, Easton.
Field, George B. Wood, Easton.
Finady, Wm. Aaron, 29 E. 4th St., South Bethlehem.
Fisler, Harry Cattell, Easton.
Fox, Arthur S., 1418 Washington St., Easton.
Fraunfelder, Jacob A., Nazareth.
Freed, Isadore E., 861 E. 4th St., South Bethlehem.
Fretz, John E., Easton.
Glick, Wm. H., 825 E. Third St., South Bethlehem.
Green, Edgar M., Easton.
Hahn, Frank J., Bath.
Heller, Henry D., Hellertown.
Hess, George H., 152 S. Fourth St., Easton.
Hoey, Rolla H., Easton.
Hoffman, Edward L., 1148 Northampton St., Easton.
Hunt, Joseph S., Easton.
Jones, Byron C., South Bethlehem.
Keller, David H., Bangor.
Keller, John C., Wind Gap.

Kern, Thomas B., Bethlehem.
Kessler, Frank J., Easton.
Kisner, Allen Oscar, Bethlehem.
Kleinhans, Paul Howard, Bethlehem.
Klock, Glenn G., Easton.
Koch, John G., Petersville.
Koch, Victor J., Nazareth.
Kotz, Adam L., Easton.
Laciar, Henry J., Bethlehem.
Leibert, Harry F., 532 E. Fourth St., S. Bethlehem.
Leigh, Herbert Crozier, 120 N. Third St., Easton.
Longacre, Jacob E., Weaversville.
Love, J. King, Easton.
Ludlow, David Hunt, Easton.
McAvoy, James Bertrand, 727 E. 3rd St., S. Bethlehem.
McCormick, Cardinal Claude, Pen Argyl.
McCormick, Henry Edward, 61 N. Third St., Easton.
McIlhaney, William H., South Easton.
McIntire, Charles, Easton.
Maysels, Alexander J., South Bethlehem.
Mazza, John Josiah Joseph, 9 Broadway, Bangor.
Messinger, Victor S., Easton.
Michler, Henry D., Easton.
Miesse, Kate DeWitt, Easton.
Miller, Elmer C., East Bangor.
Morganstern, James A., 137 S. Third St., Easton.
Phillips, Milton W., Chapman Quarries.
Pohl, Henry C., Nazareth.
Quiney, James J., 309 Bushkill St., Easton.
Raub, Ruben S., 914 Northampton St., Easton.
Reagan, Arthur D., Easton.
Reaser, Budd Jamison, Martins Creek.
Reichard, Noah W., Bangor.
Rentzheimer, William H., Hellertown.
Richards, Ellerslie Wallace, South Easton.
Richards, Oscar M., South Easton.
Roberts, Frederick C., Easton.
Rosenberry, Edward S., Stone Church.
Santee, Delbert Kansas, South Bethlehem.
Schmoyer, Herbert John, Bethlehem.
Schnabel, Edwin D., Bethlehem.
Schwartz, Paul E., 1004 Washington St., Easton.
deSchweinitz, George L., 169 E. Broad St., Bethlehem.
Sheridan, Rose B., South Bethlehem.
Sherrer, Frederick A., Easton.
Shimer, Sterling D., Easton.
Shoudy, Loyal A., Bethlehem.
Stem, Preston E., South Bethlehem.
Stofflet, Clinton F., Pen Argyl.
Stout, Abraham, Bethlehem.
Swan, Tyrus E., Easton.
Thomason, William P. O., Easton.
Tillman, W. Gilbert, 1803 Washington St., Easton.
Uhler, Stewart Mann, Pen Argyl.
Uhler, Sydenham P., Easton.
Uhler, Tobias M., 3120 Montgomery Ave., Philadelphia (Philadelphia Co.).
Updegrove, Harvey C., Easton.
Updegrove, Jacob D., Easton.
Villochi, Louis James, 27 S. Second St., Easton.
Walker, William P., South Bethlehem.
Walter, Robley D., 903 Ferry St., Easton.
Ward, Frederick E., 1119 Ferry St., Easton.
Weaver, Henry F., Easton.
Welden, Carl F., Bethlehem.
Yost, Robert J., 4th and Vine Sts., South Bethlehem.
Ziegenfuss, Nathan, South Bethlehem.
Zulick, Thomas C., Easton.

NORTHUMBERLAND COUNTY SOCIETY

(Reorganized Nov. 27, 1903.)

President...Charles M. Thomas, Sunbury.
V. Pres.....Frederick D. Raker, Shamokin.
Clay H. Weimer, Shamokin.
Sec.-Rep....Horatio W. Gass, Sunbury.
Asst. Sec. and Treasurer...Robert B. McCay, Sunbury.
Asst. Ed.....Henry T. Simmonds, Shamokin.
Robert B. McCay, Sunbury.
Censors.....Charles H. Swenk, Sunbury.
Lester E. Schoch, Shamokin.
Henry T. Simmonds, Shamokin.
Committee on Public Policy and Legislation:
George W. Reese, Shamokin.
Harvey M. Becker, Sunbury.
William T. Graham, Sunbury.
Prog. Com..J. E. Ratajski, Mt. Carmel.
George W. Reese, Shamokin.
Charles W. Rice, Northumberland.
Committe on Public Health Instruction:
John B. Cressinger, Sunbury.
Richard H. Simmons, Shamokin.
E. Roger Samuel, Mt. Carmel.

Stated meetings at 2 p. m. in Sunbury, the first Wednesday of January, March, May, September and November, and in Shamokin, at 1 p. m., the first Wednesday in February, April, June, October and December. Annual meeting in January.

MEMBERS (63)

Allison, Charles Edward, Elysburg.
Bealor, Benjamin A., Shamokin.
Becker, Harvey M., Sunbury.
Bogar, Joseph E., Millersburg (Dauphin Co.).
Buckley, William Raymond, Mt. Carmel.
Burg, Stoddard Somers, Northumberland.
Cooner, Charles C., Kulpmont.
Cressinger, John Brice, Sunbury.
Deitrick, George A., Sunbury.
Dietz, Charles K., 400 N. Spruce St., Shamokin.
Drumheller, Francis E., Sunbury.
Eister, W. Howard, Sunbury, R. D. 3.
Fagley, Raymond C., Kulpmont.
Faughnan, P. Joseph, Locust Gap.
Flanagan, Michael J., Shamokin.
Ford, James W., Mt. Carmel.
Gass, Horatio W., Sunbury.
Geise, Samuel B., Sunbury.
Gerberich, Enos A., Shamokin.
Gill, George G., State Hospital, Farview, Waymart (Wayne Co.).
Graham, William T., Sunbury.
Heilman, D. Franklin, Northumberland.
Hollenback, David S., Shamokin.
Holt, Lloyd Mott, Shamokin.
Hughes, James A., 36 E. Second St., Mt. Carmel.
Jones, Adna S., Shamokin.
Karterman, William D., Hepler (Schuylkill Co.).
Kieffer, James D., Mt. Carmel.
Knights, Agnes Sholly, Selins Grove (Snyder Co.).
Lyons, Fowler, Turbotville.
McCay, Mary A., 79 Queen St., Northumberland.
McCay, Robert B., Sunbury.
McDevitt, Bernard J., Mt. Carmel.
McWilliams, Kimber C., Shamokin.
Malick, Clarence Hiram, Herndon.
Markle, Ralph M., 1249 Derry St., Harrisburg (Dauph. Co.).
Maurer, James M., Shamokin.
Meek, Frank J., Shamokin.
Mohn, James O., Shamokin, R. D. 1.
Moody, William W., 140 Arch St., Sunbury.
Murphy, Joseph T., 215 Mahantonga St., Pottsville (Schuylkill Co.).
Poffenberger, Albert T., 251 Arch St., Sunbury.
Poffenberger, Joseph C., Masonic Temple, Sunbury.
Raker, Frederick D., Shamokin.
Ranck, Lee Russell, Milton.
Ratajski, Joseph E., Mt. Carmel.

Reese, George W., Shamokin.
Rice, Charles W., Northumberland.
Salters, Oscar E., Shamokin.
Samuel, E. Roger, Mt. Carmel.
Schnader, Amos B., Mt. Carmel.
Schoch, Lester Edgar, Shamokin.
Schoffstall, Joseph W., Sunbury.
Simmonds, Henry Thomas, Shamokin.
Simmons, Richard H., Shamokin.
Smink, Alfred H., Shamokin.
Steck, Fred P., Shamokin.
Strickland, James G., Shamokin.
Swenk, Charles H., Sunbury.
Thomas, Charles Meade, Sunbury.
Tiffany, Thomas J., Pillow (Dauphin Co.).
Vastine, John H., Shamokin.
Weimer, Clay H., Shamokin.

PERRY COUNTY SOCIETY

(Organized Nov. 19, 1849.)

President...George W. Gault, Marysville.
V. Pres.....Charles Snyder, Marysville.
Sec.-Rept...E. K. Wolff, Ickesburg.
Treasurer...W. Homer Hoopes, Newport.
Censors.....Lenus A. Carl, Newport.
Charles E. Delancy, Newport.
Edward E. Moore, New Bloomfield.

Annual meeting at New Bloomfield, second week in January. Monthly meetings at places and times selected.

MEMBERS (21)

Beale, Benjamin F., Duncannon.
Carl, Lenus A., Newport.
Delancy, Charles E., Newport.
Gault, George Washington, Marysville.
Gearhart, Montgomery, Millerstown.
Hoopes, W. Homer, Newport.
Johnston, A. Russell, New Bloomfield.
Kinzer, George S., Markelsville.
Kistler, Edwin C., Blain.
Moore, Edward E., New Bloomfield.
Morris, William G., Liverpool.
Morrow, William T., Loysville.
Orris, Henry O., Newport.
Patterson, Frank, Room 125, Pa. Sta., Pittsburgh (Allegheny Co.).
Sheibly, John A., Shermansdale.
Snyder, Charles, Marysville.
Snyder, E. Walton, Marysville.
Stein, Maurice Isaac, New Bloomfield.
VanDyke, Arthur D., Renovo (Clinton Co.).
Wolff, E. Kenneth, Ickesburg.
Woods, Harvey W., Blain.

PHILADELPHIA COUNTY SOCIETY

(Organized 1849. Incorporated Oct. 2, 1877.)

(Philadelphia is the postoffice when street address only is given.)

President...Henry D. Jump, 4634 Chester Ave.
V. Pres.....Moses Behrend, 1427 N. Broad St.
Associate Vice Presidents:
North Branch: Mitchell P. Warmuth, 1701 Chestnut St.
South Branch: Andrew Callahan, 1829 S. Broad St.
Kensington Branch: Louis E. Barlow, 3113 Richmond St.
West Branch: Samuel McClary, III, 4610 Spruce St.
Northeast Branch: George E. Levis, 4523 Frankford Ave.
Northwest Branch: Robert N. Downs, Jr., 6008 Greene St.
Southeast Branch: Aaron Brav, 917 Spruce St.
Secretary...William S. Wray, 2007 Chestnut St.
Asst. Sec. and Clerk of the Board of Directors.Elmer H. Funk, 1318 Spruce St.
Treasurer...Edward A. Shumway, 2007 Chestnut St.
Censors:
William E. Hughes, 3945 Chestnut St., 5 yrs.
Lewis H. Adler, Jr., 1610 Arch St., 4 yrs.
Judson Daland, 317 S. Eighteenth St., 3 yrs.
Jay F. Schamberg, Sec., 1922 Spruce St., 2 yrs.
William M. Welch, 1411 Jefferson St., 1 yr.
Directors:
Paul B. Cassidy, 817 S. Twenty-First St., 1920.
Benjamin F. Devitt, 1503 N. Fifteenth St., 1920.
Samuel Horton Brown, 1901 Mt. Vernon St., 1920.
J. Norman Henry, 1906 Spruce St., 1919.
John F. Roderer, 2426 N. Sixth St., 1919.
Frank C. Hammond, 3311 N. Broad St., 1919.
J. Torrance Rugh, 1616 Spruce St., 1918.
William S. Newcomet, 3501 Baring St., 1918.
William E. Parke, 1739 N. Seventeenth St., 1918.

COMMITTEES

Public Policy and Legislation:
L. Webster Fox, Chairman, 303 S. Seventeenth St.
Frank C. Hammond, 3311 N. Broad St.
William S. Higbee, 1703 S. Broad St.
Arthur C. Morgan, 3118 Diamond St.
Edwin S. Cooke, 1633 Christian St.

Library:
James M. Anders, Chairman, 1605 Walnut St.
Ella B. Everitt, 1807 Spruce Street.
Charles E. deM. Sajous, 2043 Walnut St.
Charles N. Sturtevant, 4321 Frankford Ave.
Aaron Brav, 917 Spruce St.
Lida Stewart Cogill, 1831 Chestnut St.
William T. Hamilton, 932 W. Lehigh Ave.

Increase of Membership:
John Welsh Croskey, Chairman, 3325 Powelton Ave.
Gordon M. Christine, 2043 N. Twelfth St.
George C. Yeager, 1419 E. Susquehanna Ave.
Morris Ginsburg, 1511 S. Ninth St.
Justus Sinexon, 3243 Chestnut St.

Public Health and Preventive Medicine:
John W. West, Chairman, 1125 Wallace St.
Wm. Duffield Robinson, 2012 Mt. Vernon St.
J. Evans Scheehle, 1504 Christian St.
Frederick K. Brown, 1425 S. Broad St.
George A. Knowles, 4812 Baltimore Ave.
John A. Kolmer, 927 South St. Bernard St.
George E. Johnson, 5441 Chester Ave.

Archives:
Albert M. Eaton, Chairman, 2017 N. Thirteenth St.
Samuel P. Gerhard, 639 N. Sixteenth St.
William B. Scull, 3024 Richmond St.
Christian B. Longenecker, 3416 Baring St.
Joseph D. Farrar, 1944 N. Broad St.

Tuberculosis:
T. Mellor Tyson, Chairman, 1506 Spruce St.
Frank A. Craig, 244 S. Twenty-First St.
Ward Brinton, 1423 Spruce St.
M. Howard Fussell, 2035 Walnut St.
Elmer H. Funk, 1318 Spruce St.
J. Clinton Foltz, Summit St., Chestnut Hill.
Orlando H. Petty, 6215 Ridge Ave.

Infant Mortality:
Howard Kennedy Hill, Chairman, 314 S. 17th St.
William N. Bradley, 1638 S. Broad St.
John F. Sinclair, 4103 Walnut St.

Nellie Cameron Craig, 5412 Chestnut St.
A. Graeme Mitchell, 1805 Pine St.
H. Brooker Mills, 1411 Spruce St.
Elizabeth M. Hughes, 1924 N. Sixty-Third St.

Narcotics:

John H. W. Rhein, Chairman, 1732 Pine St.
Albert E. Blackburn, 3813 Powelton Ave.
Joseph C. Doane, Philadelphia General Hospital, Pine and Thirty-Fourth Sts.
Frederick S. Baldi, 2124 W. Passyunk Ave.
Daniel J. McCarthy, 2025 Walnut St.
George E. Price, 1830 S. Rittenhouse Sq.
Albert C. Buckley, Friends' Hospital, Frankford.

Mental and Nervous Diseases:

Charles K. Mills, Chairman, 1909 Chestnut St.
Theodore H. Weisenburg, 1909 Chestnut St.
James W. McConnell, 1909 Chestnut St.
Charles W. Burr, 1918 Spruce St.
Samuel D. Ingham, 1831 Chestnut St.
J. Allen Jackson, Philadelphia Hospital for Insane, Pine and Thirty-Fourth Sts.
Nathaniel S. Yawger, 2117 Chestnut St.

Physical Deformity:

William J. Taylor, Chairman, 1825 Pine St.
Harry Hudson, 1602 Erie Ave.
Howard Reed, 1829 Diamond St.
J. Claxton Gittings, 3903 Chestnut St.
A. Bruce Gill, 318 S. Fifteenth St.
DeForest Porter Willard, 1933 Chestnut St.
Rutherford Lewis John, 248 S. Twenty-First St.

Cancer and Contagious Skin Diseases:

Ernest Laplace, Chairman, 1828 S. Rittenhouse Sq.
Christian B. Longenecker, 3416 Baring St.
Norman L. Knipe, 701 S. Fifty-Second St.
Andrew A. Cairns, S.-E. Cor. Medary Ave and Seventh St., Fern Rock, Philadelphia.
Frank Crozier Knowles, 2022 Spruce St.
Henry K. Gaskill, 1610 Spruce St.
John A. McGlinn, 113 S. Twentieth St.

Hospital Efficiency Conference:

Edward Martin, Chairman, 1506 Locust St.
Robert G. LeConte, 1530 Locust St.
Thomas McCrae, 1627 Spruce St.
S. Lewis Ziegler, 1625 Walnut St.
Wilmer Krusen, 127 N. Twentieth St.

Cooperative Allied Agencies and Institutions:

William Duffield Robinson, Chairman, 2012 Mt. Vernon St.
John W. Dick, 1945 Christian St.
Harry A. Duncan, 2615 W. Somerset St.
Empson H. Bainbridge, 1425 Poplar St.
Irving W. Hollingshead, 123 S. Eighteenth St.
John D. McLean, 1538 S. Broad St.
Seneca Egbert, 4814 Springfield Ave.

Reception of Prominent Medical Visitors and Medical Institutions:

Jay F. Schamberg, Chairman, 1922 Spruce St.
John G. Clark, 2017 Walnut St.
S. Lewis Ziegler, 1625 Walnut St.
George A. Knowles, 4812 Baltimore Ave.
Paul B. Cassidy, 817 S. Twenty-First St.
Clarence P. Franklin, 121 S. Sixteenth St.
Charles H. Frazier, 1724 Spruce St.

Alleged Malpractice:

Samuel M. Wilson, Chairman, 1517 Arch St.
Louis J. Burns, 1906 Chestnut St.
A. Wiese Hammer, 902 N. Forty-First St.
Jesse O. Arnold, 4149 N. Broad St.
Charles J. Hoban, 1609 S. Broad St.
Dudley T. Cooke, 1536 S. Broad St.
James H. Baldwin, 1426 Pine St.

Vision and Hearing:

Paul J. Pontius, Chairman, 1831 Chestnut St.
Mary Buchanan, 2106 Chestnut St.
Louis J. Burns, 1906 Chestnut St.
Aaron L. Bishop, 5324 Vine St.
Geo. H. Denney, Flanders Bldg., Walnut & 15th Sts.
Charles R. Heed, 1402 Spruce St.
Seth A. Brumm, 4813 Baltimore Ave.

Public Instruction:

Judson Daland, Chairman, 317 S. Eighteenth St.
Herbert Fox, 3902 Locust St.
Hobart A. Hare, 1801 Spruce St.
William E. Robertson, 327 S. Seventeenth St.
Henry R. M. Landis, 11 S. Twenty-First St.
Samuel McClary, III, 4610 Spruce St.
Joshua E. Sweet, 301 St. Mark's Sq.

Home of the Society:

E. E. Montgomery, Chairman, 1426 Spruce St.
James M. Anders, 1605 Walnut St.
Isador P. Strittmatter, 999 N. Sixth St.
Levi J. Hammond, 1222 Spruce St.
William H. Walsh, Baxter Bldg., 1414 S. Penn Sq.
Francis X. Dercum, 1719 Walnut St.
Geo. Woodward, 709 North American Bldg.

Foods, Beverages and Drugs:

Charles E. deM. Sajous, Chairman, 2043 Walnut St.
Henry G. Munson, 4935 Catharine St.
Martin E. Rehfuss, 1934 Chestnut St.
M. Frasier Percival, 2332 S. Broad St.
Thomas R. Currie, 512 W. Lehigh Ave.
Charles A. Moriarty, 1641 Fairmount Ave.
Robert John Hunter, 928 N. Sixty-Third St.

Public Utilities:

McCluney Radcliffe, Chairman, 1906 Chestnut St.
George D. Fussell, 422 Martin St., Rxb.
Morris Booth Miller, 2117 Pine St.
Swithin Chandler, 1935 Spruce St.
George Sinnamon, 2204 E. York St.
John J. Gilbride, 1934 Chestnut St.
Samuel C. Falls, 743 N. Sixty-Third St.

Ethics and Medical Economics:

J. Norman Henry, Chairman, 1906 Spruce St.
John H. Jopson, 1824 Pine St.
F. Hurst Maier, 2035 Chestnut St.
Rae S. Dorsett, 1729 Arch St.
Charles E. Price, 316 N. Fifty-Second St.
Henry Beates, Jr., 260 S. Sixteenth St.
Howard D. Geisler, 35 High St., Germantown.

Medical Education:

John B. Roberts, Chairman, 313 S. Seventeenth St.
David Riesman, 1715 Spruce St.
William S. Newcomet, 3501 Baring St.
Gordon J. Saxon, 5314 Spruce St.
Edward B. Hodge, 346 S. Sixteenth St.
Nathan T. Stauffer, 218 S. Twentieth St.
Clement R. Bowen, 752 S. Sixtieth St.

Insect and Animal Transmitters of Disease:

Fred D. Weidman, Chairman, 242 N. 61st St.
Damaso Rivas, Med. Dept., Univ. of Pennsylvania.
Jos. McFarland, 442 W. Stafford St., Germantown.
Eugene J. Asnis, 1809 Wallace St.
John A. Roddy, 1604 Pine St.
David H. Bergey, 206 S. Fifty-Third St.

Reference:

John D. McLean, Chairman, 1538 S. Broad St.
Francis J. Dever, 319 S. Eighteenth St.
Frank White, 1302 N. Broad St.
G. Mason Astley, 5211 Girard Ave.
Samuel Bolton, 4701 Leiper St.

Delegates to Chamber of Commerce:

Henry D. Jump, Pres. of Society, 4634 Chester Ave.
Herman B. Allyn, 501 S. Forty-Second St.

Stated meetings for business the third Wednesday of January, April, June and October, at 8:15 p. m. Election of officers in January. Scientific meetings the second and fourth Wednesdays of each month, except July and August and the fourth Wednesday of June and the second Wednesday of September, at 8:30 p. m., all at the College of Physicians, Twenty-Second and Ludlow Streets.

NORTH BRANCH

Chairman...Maximillian D. Bloomfield, 2008 N. Park Ave.
Clerk.......Edwin P. Longaker, 1402 N. Sixteenth St.

Meets the fourth Monday night, at the Auditorium of the Philadelphia Clinical Association, 1520 N. Fifteenth Street.

SOUTH BRANCH

Chairman...Edwin S. Cooke, 1633 Christian St.
Clerk.......Francis J. McCullough, 1512 S. Tenth St.

Meets the fourth Friday night, at 1301 S. Broad Street.

KENSINGTON BRANCH

Chairman...J. Edward Wallis, 2642 Richmond St.
Clerk.......Harry W. Goos, Amber and Dauphin Sts.

Meets the first Friday night, at the Lehigh Avenue Branch of the Free Library of Philadelphia, Lehigh Avenue and Sixth Street.

WEST BRANCH

Chairman...John Welsh Croskey, 3325 Powelton Ave.
Clerk.......J. Morton Boice, 4020 Spruce St.

Meets the third Tuesday night, at the Presbyterian Hospital, Filbert and Thirty-Ninth Streets.

NORTHEAST BRANCH

Chairman...Albert C. Buckley, Friends' Hospital, Fkd.
Clerk.......Philip J. Lukens, 1643 Orthodox St.

Meets the third Thursday night, at the Frankford Branch of the Free Library of Philadelphia, Frankford Avenue and Overington Street.

NORTHWEST BRANCH

Chairman...Norris W. Vaux, 8901 Germantown Ave., Chestnut Hill.
Clerk.......Elbert O. Day, 648 E. Chelten Ave., Gtn.

Meets the fourth Thursday night, at the Germantown Branch of the Free Library of Philadelphia, Vernon Park, Germantown Avenue above Chelten Avenue.

SOUTHEAST BRANCH

Chairman...Charles Mazer, 1603 S. Sixth St.
Clerk.......Louis Edeiken, 2412 S. Fifth St.

Meets the first and third Thursday nights, at the Southwark Branch of the Free Library of Philadelphia, Fifth and Ellsworth Streets.

All branches meet at 9 p. m., monthly except July and August.

This society publishes a program of the medical meetings of the various societies for the week, from September to July, inclusive, the editor of which is C. B. Longenecker, 3416 Baring St.

The society also has a Medical Defense Fund of its own for which purpose 25 cents is laid aside for each member, the membership being based on the number of members in good standing on August 31 of each year. The Hon. Hampton L. Carson is attorney for this medical defense feature.

MEMBERS (1758)

Aarons, Bernard B. H., 1909 N. Park Ave.
Abbott, Alexander C., 4229 Baltimore Ave.
Abbott, Frank Cook, 6108 Carpenter St.
Adams, Charles T., 5701 Girard Ave.
Adler, Lewis H., Jr., 1610 Arch St.
Albrecht, Herman E., 217 S. Forty-Sixth St.
Albright, Markley Connell, 2146 S. Broad St.
Alexander, Emory Graham, 1627 Oxford St.
Allen, Francis Olcott, Jr., 2216 Walnut St.
Allen, Jesse Hall, 1327 Spruce St.
Allen, Leo Barton, 2423 W. Allegheny Ave.
Allen, Luther M., 3100 Wharton St.
Allen, Mary E., 4306 Market St.
Aller, Thomas G., 1126 Spruce St.
Allis, Oscar H., 1604 Spruce St.
Allyn, Herman B., 501 S. Forty-Second St.
Alrich, William M., 6829 Chew St.
Anders, Andrew, 1708 Diamond St.
Anders, Howard S., 1700 Walnut St.
Anders, James M., 1605 Walnut St.
Anders, J. Wesley, 1329 W. Somerset St.
Anderson, Joseph W., 1831 Chestnut St.
Andrus, Walter Haskell, 5913 Greene St., Gtn.
Ankeney, Clinton R., 803 N. Twenty-Fourth St.
Annesley, William H., 3445 Frankford Ave.
Anspach, Brooke M., 1827 Spruce St.
Apeldorn, Ernest F., 2113 N. Howard St.
Applegate, John C., 3540 N. Broad St.
Appleman, Leighton F., 308 S. Sixteenth St.
Armstrong, Thomas M., 1429 Christian St.
Arnett, James H., 2540 N. Eleventh St.
Arnold, Jesse O., 4149 N. Broad St.
Arnold, Minnie Uhler, 109 S. Twenty-Second St.
Aronson, Joseph D., 3029 Frankford Ave.
Artelt, Henry, 1521 N. Eighth St.
Artman, E. Louis, 1528 Master St.
Asher, Joseph M., 1335 N. Broad St.
Ashton, W. Easterly, 2011 Walnut St.
Asnis, Eugene J., 1809 Wallace St.
Assante, Pasquale, 1335 S. Broad St.
Astley, G. Mason, 5211 Girard Ave.
Atkins, George Hulings, 1727 S. Broad St.
Atkinson, Thomas H., 2101 N. Franklin St.
Atlee, Louis William, 2039 Pine St.
Attix, James C., 2355 N. Thirteenth St.
Auge, Emily G. Whitten, 2734 Wharton St.
Austin, J. Harold, 3400 Spruce St.
Austin, J. Paul, 5915 Greene St., Germantown.
Averett, Leonard, 1016 N. Sixth St.
Babbitt, James A., 1901 Chestnut St.
Babcock, W. Wayne, 2033 Walnut St.
Bachman, Henry S., 2016 N. Second St.
Bacon, H. Augustus, 1527 Girard Ave.
Baer, Benjamin F., 2039 Chestnut St.
Baer, Benjamin F., Jr., 2039 Chestnut St.
Bailey, Edwin C., 710 Flanders Bldg., Walnut and Fifteenth Sts.
Bailey, Robert Wellesly, 102 E. Price St., Germantown.
Bainbridge, Empson H., 1425 Poplar St.
Baker, A. George, 404 Susquehanna Ave.
Baker, Frank K., 3019 Diamond St.
Baker, George F., 1818 Spruce St.
Baldi, Frederick S., 2124 W. Passyunk Ave.
Baldwin, James H., 1426 Pine St.
Baldwin, Kate W., 1117 Spruce St.
Baldy, J. Montgomery, 2219 DeLancey St.
Balentine, Percy L., 2117 Chestnut St.
Ball, Joseph P., 5001 Frankford Ave.
Balliet, Tilgham M., 3709 Powelton Ave.
Barcus, Adolph L., 923 N. Eighth St.
Bardsley, Chester Arthur, 2016 E. Allegheny Ave.
Bardsley, G. Ashton, 129 W. Susquehanna Ave.
Bare, Horace C., 2104 Green St.
Barenbaum, Louis, 519 N. Fourth St.
Barlow, Aaron, 1431 N. Franklin St.
Barlow, Louis E., 3113 Richmond St.
Barnard, Everett P., 119 S. Nineteenth St.
Barnes, Charles S., 35 S. Nineteenth St.
Barnett, Charles H. J., 812 S. Fifteenth St.

Barr, D. Miller, 38 Nyack Ave., Lansdowne (Del. Co.).
Barry, William David, 2501 N. Thirty-Second St.
Bartle, Henry J., 1727 N. Seventeenth St.
Barton, Isaac, 27 S. Nineteenth St.
Bateman, Sydney E., 42 S. Fifty-First St.
Bates, Hervey L., 134 Manheim St., Germantown.
Batroff, Warren C., 2456 N. Seventeenth St.
Bauer, Charles, 1335 N. Thirteenth St.
Bauer, Edward Louis, 1713 W. Girard Ave.
Bauer, L. Demme, 1713 W. Girard Ave.
Bauer, Marie L., 1613 Fairmount Ave.
Baum, Charles, 1828 Wallace St.
Baun, William D., 2542 W. Girard Ave.
Baxter, Ada Russell, Baxter Bldg., 1414 S. Penn Sq.
Baxter, Hart B., 1422 Christian St.
Bayley, Weston D., 424 Weightman Bldg., 1524 Chestnut St.
Beach, Edward W., 5401 Spruce St.
Beardsley, Edward J. G., 2030 Chestnut St.
Beardwood, Matthew, Jr., 5504 Ridge Ave., Rxb.
Beates, Henry, Jr., 260 S. Sixteenth St.
Beck, Albert F., 6331 Elmwood Ave.
Becker, Carl Emil, 954 N. Tenth St.
Becker, John B., 5211 Chester Ave.
Beckley, Aller G., 2836 Columbia Ave.
Bedrossian, Edward H., 1315 S. Broad St.
Beecroft, Elizabeth McKinley, 309 W. Susquehanna [Ave.
Behrend, Moses, 1427 N. Broad St.
Bell, Edward H., 739 Spruce St.
Beltran, Basil R., 1828 S. Rittenhouse Sq.
Bemis, Royal W., 2512 N. Fifth St.
Bender, Engelbert C., 330 S. Fifty-Second St.
Benedict, Franklin Duffield, 2305 N. Eighteenth St.
Bennett, John, 5911 Girard Ave.
Bennett, William A., 8008 Frankford Ave., Holmesburg.
Bennett, William H., Children's Sea-Shore House, Atlantic City, N. J.
Berens, Bernard, 2041 Chestnut St.
Berens, Conrad, 2004 Chestnut St.
Bergeron, P. Narbert, 1908 Girard Ave.
Bergey, David H., 206 S. Fifty-Third St.
Bernardy, Henry L., 321 S. Eleventh St.
Bernd, Leo H., 2106 Chestnut St.
Bernheim, Albert, 1225 Spruce St.
Bernstein, Mitchell, 910 Tasker St.
Bethel, John P., 1825 Fairmount Ave.
Beyea, Henry D., 1734 Spruce St.
Biedert, Charles C., 116 S. Eighteenth St.
Billings, Arthur Eugene, 252 S. Sixteenth St.
Bird, Gustavus C., 1415 Erie Ave.
Birdsall, Joseph C., 3459 Chestnut St.
Birney, Herman H., 4016 Chestnut St.
Bishop, Aaron Lafayette, 5324 Vine St.
Blackburn, Albert E., 3813 Powelton Ave.
Blackwood, Jas. Douglas, Jr., 5346 Wayne Ave., Gtn.
Blakeslee, Walter H., 3328 N. Seventeenth St.
Bland, Pascal Brooke, 1621 Spruce St.
Blayney, Charles Alva, 5009 Walnut St.
Blechschmidt, Dott Case, 315 S. Eighteenth St.
Blechschmidt, Julius, 315 S. Eighteenth St.
Blieden, Maurice S., 1318 S. Fifth St.
Blitzstein, Rosalie M., 4122 Girard Ave.
Block, Frank Benton, 1503 Girard Ave.
Bloom, Homer C., 1421 Walnut St.
Bloomfield, Maximillian D., 2008 N. Park Ave.
Blumberg, Nathan, 708 Pine St.
Bobb, Wallace G., 15th and Allegheny Ave.
Bochroch, Max H., 1539 Pine St.
Boehringer, H. Winfield, 1811 S. Twenty-Second St.
Bogart, Arthur E., 5046 Market St.
Boger, John A., 2213 N. Broad St.
Boice, J. Morton, 4020 Spruce St.
Boles, Russell S., Fifty-Third St. and Overbrook Ave., Wynnefield, Philadelphia.
Bolin, Jesse Albert, 3517 Longshore St.
Bolin, Zira E., 3517 Longshore St., Tacony.
Bolton, Samuel, 4701 Leiper St.
Bond, Earl Danford, 4401 Market St.
Bonnaffon, Samuel A., 3439 Walnut St.
Bonney, Charles W., 1117 Spruce St.
Boon, W. Thomas, 215 Green Lane, Manayunk.
Booye, Mark T., 1818 N. Twelfth St.
Borrowes, George H., 702 E. Westmoreland St.
Borzell, Francis F., 900 E. Westmoreland St.
Boston, L. Napoleon, 1819 Chestnut St.
Boulton, Eleanor F., P. O. Box 638.
Bove, Anthony D., 1407 S. Thirteenth St.
Bowen, Clement Remington, 752 S. Sixtieth St .
Bowen, David R., 922 S. St. Bernard St.
Bower, Collier L., 224 S. Broad St.
Bower, Franklin S., 3318 Germantown Ave.
Bowman, Frank S., 1711 S. Thirteenth St.
Bowne, Charles J., 601 W. Olney Ave.
Bowyer, Maude A., 254 S. Sixteenth St.
Boyce, Lee, 2531 Columbia Ave.
Boyd, George M., 1909 Spruce St.
Boyd, S. Harold, 5927 Ridge Ave.
Boyer, D. Pellman, 4747 Richmond St.
Boyer, Henry Percival, 4602 Baltimore Ave.
Boyer, J. Clinton, 745 S. Third St.
Boyer, Merle S., 108 S. Fourth St.
Boyer, Robert, 2420 N. Broad St.
Bradley, Clarence Davis, 4905 N. Twelfth St.
Bradley, Thomas B., 2009 Chestnut St.
Bradley, William N., 1638 S. Broad St.
Brady, Charles P., 7130 Rising Sun Ave.
Brady, Franklin, 1815 Frankford Ave.
Bram, Israel, 1714 N. Seventh St.
Bransfield, John W., 2025 Walnut St.
Brav, Aaron, 917 Spruce St.
Brav, Herman A., 1933 N. Broad St.
Bready, William R., Jr., 1857 N. Eleventh St.
Brecker, N. Francis, 2347 St. Albans St.
Bremer, Paul F., 839 N. Broad St.
Brenner, Maxwell B., 2919 Richmond St.
Brick, J. Coles, 1327 Spruce St.
Bridgett, Charles R., 3332 Chestnut St.
Brinkerhoff, Nelson M., 1821 Chestnut St.
Brinton, Ward, 1423 Spruce St.
Brister, Samuel, 1946 N. Thirty-Second St.
Brittingham, James D., 4002 Chestnut St.
Britton, Harry A., Phil. Gen. Hosp., Thirty-Fourth and Pine Sts.
Broadfield, John Augustus, 3131 Frankford Ave.
Brooke, Emma W., 1423 Locust St.
Brooke, John A., 407 Flanders Bldg., Walnut and Fifteenth Sts.
Brooks, Macy, 1321 Spruce St.
Brophy, John A., 1819 Chestnut St.
Brown, Claude P., 303 E. Logan Ave., Glenolden (Delaware Co.).
Brown, C. Sheble, 4304 Frankford Ave.
Brown, Frederick K., 1425 S. Broad St.
Brown, H. MacVeagh, 4608 Baltimore Ave.
Brown, Henry P., Jr., 1523 Locust St.
Brown, Maurice, 5037 N. Fifth St.
Brown, Samuel H., Jr., 1901 Mt. Vernon St.
Brown, Wm. Richard, Jr., 2345 E. Cumberland St.
Brubaker, Albert P., 3426 Powelton Ave.
Brumbaugh, Simon S., 2923 N. Twelfth St.
Brumm, Seth Arthur, 4813 Baltimore Ave.
Bruner, Henry G., 542 N. Eleventh St.
Brunet, John E., 2038 N. Broad St.
Bryan, J. Roberts, 4200 Chestnut St.
Buchanan, Mary, 2106 Chestnut St.
Buchanan, Thomas J., Toms River, N. J.
Buckenham, John Edgar Burnett, Municipal Hosp., Luzerne and Second Sts.
Buckingham, Harry Sheldon, 5615 Washington Ave.
Buckley, Albert C., Friends Hosp., Frankford.
Bundy, Elizabeth R., 1930 Chestnut St.
Bunting, Josiah T., 6410 Germantown Ave.
Burke, Joseph J., 5117 Baltimore Ave.

Burke, Richard Davis, 515 Green St.
Burns, Joseph P., 5231 Chester Ave.
Burns, Louis J., 1906 Chestnut St.
Burns, Stillwell C., 1326 Spring Garden St.
Burr, Charles W., 1918 Spruce St.
Burriss, Walton S., 6645 Torresdale Ave., Tacony.
Burwell, T. Spotuas, 2008 Fitzwater St.
Busch, John W., 2500 S. Eighteenth St.
Butler, Margaret F., 2127 Green St.
Butler, Ralph, 1926 Chestnut St.
Butt, Miriam M., 1701 Chestnut St.
Butte, Harley J., 1809 Chestnut St.
Butz, Alfred S., 735 N. Forty-First St.
Buzby, B. Franklin, 6117 Columbia Ave.
Byers, Edgar H., 2006 N. Broad St.
Byrne, Thomas J., 1517 S. Broad St.
Cadwallader, Williams B., 1710 Locust St.
Cahall, William C., 154 W. Chelten Ave., Gtn.
Cahan, Jacob A., 1218 N. Tenth St.
Cairns, Andrew A., S.-E. Cor. Medary Ave. and 7th St., Fern Rock, Philadelphia.
Callahan, Andrew, 1829 S. Broad St.
Cameron, Geo. A., Greene St. and School Lane, Gtn.
Cameron, John L., 1500 Girard Ave.
Cariss, Walter L., 801 N. Forty-First St.
Carmany, Harry S., 366 Green Lane, Rxb.
Carnett, John Berton, 123 S. Twentieth St.
Carpenter, Herbert B., 1805 Spruce St.
Carpenter, Howard C., 1805 Spruce St.
Carpenter, John T., Jr., 2039 Chestnut St.
Carpenter, Samuel A., 2265 N. Sixteenth St.
Carr, Charles D., 1917 Spruce St.
Carrier, Frederic, 406 S. Sixteenth St.
Carroll, William, 617 S. Sixteenth St.
Carruthers, Georgiana H., 3064 Frankford Ave.
Carson, John Baker, 348 S. Sixteenth St.
Carter, Andrew D., 753 N. Fortieth St.
Case, Eugene Allen, Wake Forest School of Medicine, Wake Forest, N. C.
Cassidy, Paul B., 817 S. Twenty-First St.
Catford, Darnley Wood, 2901 N. Twenty-Fourth St.
Cattell, Henry W., 3709 Spruce St.
Chaiken, Jacob B., 924 N. Eleventh St.
Chance, Burton, 235 S. Thirteenth St.
Chandlee, William Herbert, 4930 Frankford Ave.
Chandler, Charles F., 1750 N. Park Ave.
Chandler, Swithin, 1935 Spruce St.
Chandler, Swithin T., 5302 Wayne Ave., Gtn.
Chapin, Laura Stitzer, 1724 Diamond St.
Chase, Theodore L., 2009 Chestnut St.
Chestnut, James C., 1817 Frankford Ave.
Cheston, Radcliffe, 102 W. Chestnut Ave., C. H.
Child, Dorothy, care of Univ. of Kan., Lawrence, Kan.
Child, Florence C., McKean Ave., Gtn.
Chirinos, Frederick C., 2656 E. Allegheny Ave.
Chodoff, Louis, 705 Pine St.
Christian, Hilary M., 1321 Spruce St.
Christine, Gordon M., 2043 N. Twelfth St.
Ciccone, G. Vico, 1409 S. Broad St.
Clagett, Augustus H., 2615 N. Twenty-Ninth St.
Clapp, George H., 5129 Baltimore Ave.
Clark, Benjamin F. R., Palmerton (Carbon Co.).
Clark, Cunningham P., 1514 S. Broad St.
Clark, Edward V., 1514 S. Broad St.
Clark, Elizabeth E., 252 High St., Germantown.
Clark, Elizabeth F. C., 1709 Pine St.
Clark, George G., 2221 N. Sixteenth St.
Clark, Jefferson H., Samaritan Hosp., Broad and Ontario Sts.
Clark, John G., 2017 Walnut St.
Clark, William L., 1809 Chestnut St.
Cleveland, F. Mortimer, 5211 Walnut St.
Cloud, Charles H., 14 N. Sixtieth St.
Coates, George M., 1736 Pine St.
Coates, Thomas Gordon, 1413 Lombard St.
Codman, Charles A. E., 4116 Spruce St.
Cogill, Lida Stewart, 1831 Chestnut St.
Cohen, Abraham J., 723 Pine St.
Cohen, Herman Bernard, 933 Lindley Ave., Logan.
Cohen, J. Solis, 2113 Chestnut St.
Cohen, Leon Solis, 1525 Walnut St.
Cohen, Myer Solis, 2113 Chestnut St.
Cohen, S. Solis, 1525 Walnut St.
Cohn, Adolph, 937 N. Eighth St.
Cole, Charles J., Elkins Park (Montg. Co.).
Coles, Stricker, 2103 Walnut St.
Colgan, James F. E., 1022 N. Fifth St.
Colgan, John A., 1809 Chestnut St.
Collins, Arthur A., Oxford (Chester Co.).
Collins, Ebert Caleb, 48 W. Upsal St.
Conard, Thomas E., 1855 N. Seventeenth St.
Conlen, Alexander J. P., 8116 Tinicum Ave.
Connor, Annie L., 7056 Germantown Ave.
Cook, Alice H., 4401 Market St.
Cooke, Dudley T., 1536 S. Broad St.
Cooke, Edwin S., 1633 Christian St.
Cooperman, Morris B., 833 S. Third St.
Cope, Thomas A., 6504 Germantown Ave.
Coplin, William M. L., 606 S. Forty-Eighth St.
Copp, Owen, 4401 Market St.
Cornell, Walter S., 729 City Hall.
Corson, Charles C., 6406 Germantown Ave.
Corson-White, Ellen P., 216 S. Fifteenth St.
Cortesse, Ignazio, 1025 Christian St.
Cowan, Alfred, 1118 Chestnut St.
Cowie, Helen Jean, 42 S. Forty-Fourth St.
Craig, Alexander R., 535 N. Dearborn St., Chicago, Ill.
Craig, Clark R., 331 S. Twelfth St.
Craig, Frank A., 244 S. Twenty-First St.
Craig, Nellie Cameron, 5412 Chestnut St.
Craig, William F., 1603 W. Lehigh Ave.
Cramp, Joseph A., 1902 Chestnut St.
Crampton, George S., 1700 Walnut St.
Crandall, Thomas V., 1801 Chestnut St.
Creighton, William J., 1905 Chestnut St.
Crosby, William S., 328 S. Seventeenth St.
Croskey, John W., 3325 Powelton Ave.
Crowe, F. Beresford, 728 S. Sixtieth St.
Crueger, Edward A., 1123 N. Forty-First St.
Cruice, John M., 1932 Spruce St.
Cryer, Matthew H., 140 S. Lansdowne Ave., Lansdowne (Del. Co.).
Curran, John D., 1418 S. Broad St.
Currie, Charles A., W. Walnut Lane, Germantown.
Currie, Thomas R., 512 W. Lehigh Ave.
Cushing, Herbert H., 451 S. Fifty-First St.
Custer, David D., 137 Green Lane, Manayunk.
Custer, Ella B., 137 Green Lane, Manayunk.
DaCosta, J. Chalmers, 2045 Walnut St.
DaCosta, John C., Jr., N.W. cor. Spruce and 15th Sts.
Daland, Judson, 317 S. Eighteenth St.
Daniels, Clarence D., 2267 N. Eighteenth St.
Dannenberg, Arthur M., 1608 N. Sixteenth St.
d'Apery, Tello J., 767 N. Fortieth St.
Davidson, Arthur J., 200 S. Twelfth St.
Davies, John R., Jr., 302 S. Nineteenth St.
Davis, Alvah M., 25 High St., Germantown.
Davis, Edward P., 250 S. Twenty-First St.
Davis, Gwilym G., 1814 Spruce St.
Davis, J. Leslie, 135 S. Eighteenth St.
Davis, Richard S., 302 School Lane, Germantown.
Davis, T. Carroll, 2408 W. Allegheny Ave.
Davis, Warren B., 135 S. Eighteenth St.
Davisson, Alexander H., 1017 S. Forty-Sixth St.
Day, Elbert O., 648 E. Chelten Ave., Germantown.
Deal, John Colton, 5401 Haverford Ave.
Deardorff, William H., 5049 Hazel Ave.
Deaver, Henry C., 1415 N. Broad St.
Deaver, John B., 1634 Walnut St.
Deaver, Richard W., 6105 Germantown Ave.
DeCarlo, John, 1104 Ellsworth St.
Deehan, Sylvester J., 843 N. Twenty-Fourth St.
DeFord, Moses, 1524 Chestnut St.
Deichler, L. Waller, 750 N. Forty-First St.

Dempsey, William Thomas, 2606 N. Fifth St.
Dengler, Clarence Keller, 5201 Ridge Ave.
Dengler, Robert H., 2324 N. Broad St.
Denney, Geo. H., S.E. Cor. 35th & Spring Garden Sts.
Dercum, Francis X., 1719 Walnut St.
Despard, Duncan L., 1806 Pine St.
Dever, Francis J., 319 S. Eighteenth St.
Devereux, Robert T., 1856 Hunting Park Ave.
Devitt, Benjamin F., 1503 N. Fifteenth St.
Devitt, William, 130 Green Lane, Manayunk.
Devlin, Albert J., 1615 N. Tenth St.
Dewey, J. Hiland, 1436 Diamond St.
Dick, John W., 1945 Christian St.
Dick, Walter, Ramsaytown (Jeff. Co.).
Dickinson, Harrington S., 5001 Walnut St.
Diez, M. Louise, 5733 Spruce St.
Dillard, Henry K., Jr., 234 S. Twentieth St.
Dintenfass, Henry, 415 Pine St.
Dixon, Samuel G., Bryn Mawr (Montg. Co.).
Doan, Henry H., 153 W. Carpenter Lane, Pelham.
Doane, Joseph C., Phila. Gen. Hosp., Pine & 34th Sts.
Doe, Charles Herbert, St. Mary's Hosp., Rochester, Minn.
Dolson, Frank E., 413-414 Weightman Bldg., 1524 Chestnut St.
Donmoyer, Ida L., 2443 N. Seventeenth St.
Donnelly, Daniel J., 3727 N. Fifteenth St.
Donnelly, Dorothy, 213 Green Lane, Rxb.
Donnelly, Edward J., 3000 W. Lehigh Ave.
Donnelly, John Develin, 6914 Old York Rd.
Dorland, W. A. N., 4527 N. Racine Ave., Chicago, Ill.
Dorr, Henry I., 158 Sumner St., Somerville, Mass.
Dorrance, George M., 2025 Walnut St.
Dorsett, Rae S., 1729 Arch St.
Dorwarth, Charles Votteler, 1520 Erie Ave.
Dougherty-Trexler, Henrietta M., 923 W. Susquehanna Ave.
Douglas, Malcolm, 1814 Tioga St.
Douredoure, Eveleen A., 4107 Baltimore Ave.
Downs, Ardrey W., McGill Univ., Montreal, Canada.
Downs, Robert N., Jr., 6008 Greene St., Gtn.
Downs, Thomas A., 409 N. Forty-First St.
Doyle, Alfred S., 5849 Chestnut St.
Doyle, John J. A., 1509 N. Thirteenth St.
Drake, Elwood L., 2762 Pratt St.
Dray, Arthur R., c/o Dr. D. S. Dodge, Hotel Ansonia, 73rd St. and Broadway, New York City.
Drayton, William, Jr., 330 S. Seventeenth St.
Dripps, John H., 1812 N. Eleventh St.
Druce, Thomas W., 1316 S. Thirty-Fifth St.
Drumheller, Floyd D., 5128 Chester Ave.
Drummond, Winslow, 1824 N. Thirteenth St.
Dry, David Miller, Jefferson Hosp., Sansom & 10th Sts.
Dubbs, John H., 2722 N. Twelfth St.
Dubbs, Robert L., 1622 S. Eighteenth St.
Dukes, John L., 344 N. Fifty-Second St.
Dulles, Charles W., 4101 Walnut St.
Duncan, Harry A., 2615 W. Somerset St.
Dundore, Claude A., Fifth and Center Sts., Ashland (Schuyl. Co.).
Dyson, Frank Moir, 1513 Butler St.
Ealer, Percy H., 2027 Spring Garden St.
Earnshaw, Henry C., Bryn Mawr (Montg. Co.).
Eaton, Albert M., 2017 N. Thirteenth St.
Eckfeldt, John W., 6312 Vine St.
Edeiken, Louis, 2412 S. Fifth St.
Edwards, Preston M., 3957 Warren St.
Edwards, Thomson, 906 S. Forty-Seventh St.
Eft, Frederick, 1340 N. Thirteenth St.
Egbert, Joseph C., Wayne (Delaware Co.).
Egbert, Seneca, 4814 Springfield Ave.
Eglick, Samuel, 525 N. Fourth St.
Egly, H. Conrad, Kirkwood (Lancaster Co.).
Eichman, Edward A., 440 Lyceum Ave.
Elder, Frank H., 6038 Overbrook Ave.
Eldredge, Clarence S., 2330 N. Seventeenth St.
Eliason, Eldredge L., 320 S. Sixteenth St.
Ellinger, J. Edgar, Clearfield and Seventh Sts.
Ellis, Aller G., N. W. Cor. Tenth and Walnut Sts.
Ellis, Samuel, 6203 Elmwood Ave.
Ellis, William T., 1926 N. Nineteenth St.
Elmer, Malcomb K., 3906 Chestnut St.
Elmer, Walter G., 1801 Pine St.
Ely, Thomas Cox, 2041 Green St.
Embery, Frank, 4531 Frankford Ave.
Emich, John P., 3245 N. Front St.
Endres, Joseph M., 1416 S. Fifteenth St.
Engelhardt, Caroline S. R., Lansdale Hosp., Lansdale (Montg. Co.).
Enoch, George F., 7926 Frankford Ave.
Erck, Theo. A., 251 S. Thirteenth St.
Erney, Erwin H., 5602 Lansdowne Ave.
Eshleman, Robert H., 4817 Baltimore Ave.
Eshner, Augustus A., 1019 Spruce St.
Evans, William, 4007 Chestnut St.
Everitt, Ella B., 1807 Spruce St.
Eves, Curtis Clyde, 1700 Walnut St.
Ewing, Charles H., 1330 S. Seventeenth St.
Falls, Samuel C., 743 N. Sixty-Third St.
Faries, Randolph, 2007 Walnut St.
Faris, George T., Glenside (Montg. Co.).
Farley, Joseph, 1919 S. Broad St.
Farr, Clifford B., 117 S. Twenty-Second St.
Farr, William W., Springfield Ave. and Lincoln Drive, Chestnut Hill.
Farrar, Joseph D., 1944 N. Broad St.
Farrington, Charlotte S., 2130 W. Passyunk Ave.
Faught, Francis Ashley, 5006 Spruce St.
Feldman, Jacob B., 1339 N. Seventh St.
Feldstein, Sidney L., 2145 N. Fifteenth St.
Felt, Carle L., 2007 Chestnut St.
Fenerty, Vincent J., 2217 E. Cumberland St.
Fenton, Thomas H., 1319 Spruce St.
Ferguson, Albert D., 50 E. Johnson St., Gtn.
Ferguson, George M., 706 S. Forty-Ninth St.
Ferguson, William N., 125 W. Susquehanna Ave.
Ferguson, William Norman, Jr., 2725 N. Fifth St.
Ferris, Francis S., 501 S. Forty-Fifth St.
Fetterman, Wilfred B., 7047 Germantown Ave.
Fetterolf, George, 134 S. Twentieth St.
Fiet, Harvey J., 2152 N. Fourth St.
Fife, Charles A., 2038 Chestnut St.
Finck, Edward B., 1518 Pine St.
Fineman, Harry E., 1338 N. Franklin St.
Fingles, Albert A., 2229 Vine St.
Finkler, Ricka S., 419 S. Eighth St.
Firth, George Williams, 1802 E. Schiller St.
Fischelis, Philip, 828 N. Fifth St.
Fish, Harry C., 236 N. Fiftieth St.
Fisher, Frank, 1911 Arch St.
Fisher, Henry, 2345 E. Dauphin St.
Fisher, Henry M., 1027 Pine St.
Fisher, Herbert P., 5532 Wayne Ave., Germantown.
Fisher, John M., 222 S. Fifteenth St.
Fisher, John V., 6027 Larchwood Ave.
Fisher, Lewis, 1007 Spruce St.
Fisher, Mary, 1911 Arch St.
Fisher, Mulford K., 3128 Diamond St.
Fitzpatrick, Ignatius L. J., 1807 S. Eighteenth St.
Flannery, Leo G., S.-W. Cor. Broad and York Sts.
Fleming, Thomas J., 2225 Green St.
Flick, John B. L., 736 Pine St.
Flynn, J. Cajetan, 1225 N. Sixth St.
Foehrenbach, Julius E., 3228 N. Fifteenth St.
Foltz, J. Clinton, Summit St., Chestnut Hill.
Ford, Walter A., N.-E. Cor. 15th and Locust Sts.
Formad, Marie K., 927 N. Broad St.
Forman, Horace J., Jr., 3350 N. Fifteenth St.
Forst, John R., 166 W. Coulter St., Germantown.
Foulkrod, Collin, 4005 Chestnut St.
Fox, Herbert, 3902 Locust St.
Fox, L. Webster, 303 S. Seventeenth St.
Fraley, Frederick, 314 S. Seventeenth St.
Frame, Jessie Gray, 5932 Ridge Ave.

Francine, Albert P., 264 S. Twenty-First St.
Frankel, Jacob J.. 1314 S. Fifth St.
Franklin, Clarence P., 121 S. Sixteenth St.
Franklin, M. Burnett, 1512 Diamond St.
Fraser, Hugh D., 6618 Woodland Ave.
Frazier, Charles H., 1724 Spruce St.
Freas, Henry M., 418 W. Huntingdon St.
Freeman, Frank Ernest, 1231 N. Sixtieth St.
Freeman, Walter J., 1832 Spruce St.
Freeman, Walter S., 909 W. Susquehanna Ave.
Freese, Annie E., Second and Luzerne Sts.
Frescoln, Leonard D., 3944 Aspen St.
Fretz, Howard G., 1207 W. Erie Ave.,
Freund, Henry H., 1443 S. Broad St.
Frick, J. Howard, 402 High St., Germantown.
Fridy, Cyrus W., 58th St. and Thomas Ave.
Friedmann, Adolph H., 205 N. Sixtieth St.
Friedmann, O. Fleisher, 2124 N. Twelfth St.
Fries, Charles J. V., Jr., 2044 Chestnut St.
Fries, Irwin A., 1312 S. Broad St.
Fritch, James Scott, 1318 Spruce St.
Fritts, William H., 535 N. Eleventh St.
Fritz, Clarence Henry, 1822 S. Broad St.
Fritz, W. Wallace, 1600 Summer St.
Fuller, Daniel H., Penn. Hosp. for Insane, Market and Forty-Ninth Sts.
Fuller, Dwight Bailey, 208 N. Thirty-Fourth St.
Fulton, T. Chalmers, Schuyler Bldg., Diamond and Sixth Sts.
Fulton, Z. M. Kempton, 1111 W. Lehigh Ave.
Funk, Elmer H., 1318 Spruce St.
Furbush, Charles Lincoln, 1501 Spruce St.
Fusco, Pasquale. 1230 Reed St.
Fussell, George D., 422 Martin St., Rxb.
Fussell, M. Howard, 421 Lyceum Ave., Rxb.
Gadd, Samuel W., 2114 S. Sixteenth St.
Gaillard, A. Theodore, 1831 Chestnut St.
Galbraith, James L., 2239 N. Nineteenth St.
Gallagher, James S., 455 E. Walnut Lane, Gtn.
Gallagher, John P.. 4104 Old York Road.
Gans, Emanuel S., 711 N. Franklin St.
Gans, S. Leon, 1327 N. Fifteenth St.
Gaskill, Henry K., 1610 Spruce St.
Gaston, Ida E., 2833 Diamond St.
Geisler, Howard D., 35 High St., Germantown.
Gerhard, Arthur H., 2110 Pine St.
Gerhard, Samuel P., 639 N. Sixteenth St.
Gerlach, Ella M., 3706 Brown St.
Gerlach, Richard F., 1416 N. Seventeenth St.
Gessler, Charles W., 1311 S. Broad St.
Getelman, Ralph E., 117 S. Forty-Fourth St.
Getson, Philip, 1318 E. Moyamensing Ave.
Gibbon, John H., 1608 Spruce St.
Gilbride, John J., 1934 Chestnut St.
Gildersleeve, George Henry, 525 N. Sixth St.
Gile, Ben Clark, 1906 Chestnut St.
Gilger, Ralph Jonas, 1238 N. Fifty-Third St.
Gilhool, Edward, 3812 N. Broad St.
Gill, A. Bruce, 318 S. Fifteenth St.
Gilliland, Samuel H., Weidner Bldg.
Gilpin, Sherman F., 432 N. Fifty-Second St.
Ginsburg, Morris, 1511 S. Ninth St.
Ginsburg, Nathaniel, 1704 Pine St.
Ginsburg, Samuel A., 1901 S. Broad St.
Girvin, John H.. 2120 Walnut St.
Gittelson, Samuel J., 1017 Spruce St.
Gittings, J. Claxton, 3903 Chestnut St.
Given, Ellis E. W., 2018 Chestnut St.
Gleason, E. Baldwin, 2033 Chestnut St.
Goddard, Herbert M., 1338 Spruce St.
Godfrey, Henry G., 2054 E. Cumberland St.
Goepp, R. Max, 124 S. Eighteenth St.
Goldberg, Harold G., 1925 Chestnut St.
Goldberg, Joseph M., 855 N. Seventh St.
Goldberg, Maurice, 1408 S. Sixth St.
Goldberg, Samuel, 4415 Germantown Ave.
Golden, Henry, 1722 S. Broad St.
Goldring, Emil J., 1722 N. Eighth St.
Goldsmith, S. Byron, 247 S. Thirteenth St.
Goldstein, A. Otto, 987 N. Fifth St.
Goldstein, Joseph, 2437 W. Lehigh Ave.
Good, William H., 5309 N. Second St.
Goodell, W. Constantine, 300 S. Thirteenth St.
Goodman, Edward H., 248 S. Twenty-First St.
Goodman, Robert, 221 Fitzwater St.
Goodwin, Warren C., 3740 Powelton Ave.
Goos, Harry William, Amber and Dauphin Sts.
Gordon, Alfred, 1812 Spruce St.
Gordon, Benj. L., N.-W. Cor. Broad and Mifflin Sts.
Gordon, S. Finley, State Hosp. for Insane, Howard, R. I.
Gorman, John F., 2523 W. Allegheny Ave.
Goss, Charles, 1316 W. Allegheny Ave.
Grady, William P., 1214 N. Seventh St.
Graf, Edmund L., 927 S. Sixtieth St.
Graham, Edwin E.. 1713 Spruce St.
Graham, John, 326 S. Fifteenth St.
Grahn, S. Norman, 1744 N. Tenth St.
Gray, Alfred P., 4651 Leiper St.
Gray, Clarence H., 2044 Chestnut St.
Gray, George B., 6118 W. Oxford St.
Gray, Robert L., 3031 N. Broad St.
Grayson, Charles P., 262 S. Fifteenth St.
Green, Mary J., 707 N. Fortieth St.
Green, Max, 1706 S. Fifth St.
Greenbaum, Sigmund S., 1103 S. Eighth St.
Greene, William H., N.-E. Cor. 16th and Arch Sts.
Greenewalt, Frank L., 1424 Master St.
Griffith, J. P. Crozer, 1810 Spruce St.
Griggs, William C., 558 N. Fifty-Eighth St.
Grim, Ella Williams, 46 N. Fortieth St.
Grime, Robert T., 3830 Locust St.
Grimes, Charles Henry, 3417 Old York Road.
Grimes, Robert Bruce, 630 S. Fifty-Second St.
Griscom, J. Milton, 1925 Chestnut St.
Groff, Charles A., 222 N. Thirteenth St.
Groff, Henry C., S.-E. Cor. Broad and Venango Sts.
Groff, John W., 3500 N. Broad St.
Gross, Samuel, 645 Ritner St.
Guilfoyle, William F., 4108 Baltimore Ave.
Gulezian, Lucy E., 415 S. Sixteenth St.
Gummey, Frank B., 5418 Greene St., Gtn.
Gurin, Adolph A., 530 Pine St.
Guthrie, D. Clinton, 722 N. Fortieth St.
Guthrie, Kenneth S., 182 Monroe St., Brooklyn, N. Y.
Gwyn, Norman B., 20 S. Twenty-First St.
Haerer, Frederick J., Drexel Bldg., Chestnut and Fifth Sts.
Haig, Charles R., Jr., 1818 Diamond St.
Haines, Wilbur H., 1701 Chestnut St.
Hale, George, 29 W. Main St., Haddonfield, N. J.
Hall, Annie Bartram, 1415 N. Seventeenth St.
Hall, William D. W., 801 S. Forty-Ninth St.
Hallowell, Charles E., 1208 Chestnut St.
Halperen, Abraham D., 2335 S. Eighth St.
Hamill, Samuel McC., 1822 Spruce St.
Hamilton, William A., 602 E. Girard Ave.
Hamilton, William T., 932 W. Lehigh Ave.
Hammer, A. Wiese, 902 N. Forty-First St.
Hammond, Frank C., 3311 N. Broad St.
Hammond, Levi Jay, 1222 Spruce St.
Hancock, Frank Bacon, 2065 N. Sixty-Third St.
Hand, Alfred, Jr., 1724 Pine St.
Hanna, George C., 4840 Frankford Ave.
Hanna, Hugh, 2843 Diamond St.
Hannum, William, 844 N. Twenty-Third St.
Hansell, Howard F., Walnut and Seventeenth Sts.
Harbaugh, Charles H., 1143 S. Broad St.
Harbridge, Delamere Forest, Goodrich Block, Phoenix, Arizona.
Hardin, Julia H., 6323 Lancaster Ave.
Hare, Hobart A., 1801 Spruce St.
Hargett, Walter S., 5617 Girard Ave.
Harris, Frank D., 2315 N. Seventeenth St.

Harris, Joseph G., 727 Fitzwater St.
Harris, Raymond J., 1843 S. Broad St.
Harrison, Francis G., 5112 Chester Ave.
Harrison, Rose, 1836 S. Broad St.
Harrison, William J., 3452 Kensington Ave.
Harte, Richard H., 1503 Spruce St.
Hartley, Harriet L., 1534 N. Fifteenth St.
Hartwell, John H., 3302 N. Broad St.
Hartz, Harry J., 1002 Jackson St.
Hartz, William, 2510 W. Lehigh Ave.
Hartzell, Milton B., 3644 Chestnut St.
Hassell, Howard W., 2107 Fairmount Ave.
Hatfield-Richardson, Bertha S., 2021 N. 13th St.
Hatfield, Charles J., 2008 Walnut St.
Hawke, Wilfred W., 510 Flanders Bldg.
Hawkins, Charles L., 1937 Federal St.
Hayes, John Agnew, 1822 Master St.
Hazzard, Henry Draper, 1243 S. Broad St.
Head, Joseph, 235 S. Fifteenth St.
Hearing, Wellington R., 708 W. Lehigh Ave.
Hearn, Marion, 1831 Chestnut St.
Hearn, William P., 2119 Spruce St.
Hearne, Charles S., 1632 Chestnut St.
Hearst, John A., 6043 Germantown Ave.
Heath, Francis J., c/o Union Medical College for Women, Peking, China.
Hebsacker, William F., 2151 E. Cumberland St.
Heck, John A., 958 N. Fifth St.
Heed, Charles R., 1402 Spruce St.
Heilman, Eugene A., 876 Highland Ave.
Heimer, Louis B., 2404 N. Thirty-Second St.
Heineberg, Alfred, 1642 Pine St.
Heisler, Frank Joseph, 2821 Diamond St.
Heisler, John C., 3829 Walnut St.
Heist, George D., 5219 Greene St., Gtn.
Heller, Edwin A., 1911 N. Broad St.
Henry, Frederick P., 114 S. Eighteenth St.
Henry, J. Norman, 1906 Spruce St.
Henry, Melvin K., 5011 Tacony St.
Henry, Robert W., 768 S. Fifteenth St.
Herbert, J. Frederick, Flanders Bldg., S.-E. Cor. Fifteenth and Walnut Sts.
Herbert, J. Frederick, Jr., 2132 N. Twelfth St.
Herchelroth, J. Grant, 4837 Baltimore Ave.
Herman, J. Leon, 1701 Chestnut St.
Herman, Maxwell, 319 Pine St.
Hermance, William Oakley, 2040 Pine St.
Herrman, Max F., 3703 Old York Road.
Hewish, Edgar M., 2131 Columbia Ave.
Hewson, Addinell, 2120 Spruce St.
Hewson, William, 5950 Overbrook Ave.
Hibshman, Harry Z., 4006 N. Fifth St.
Higbee, William S., 1703 S. Broad St.
Higgate, Wilfred O., 822 N. Forty-First St.
Higgins, Frank J., 2229 N. Broad St.
Higgins, James C., 225 N. Twentieth St.
Hilferty, Edward F., 2225 N. Twenty-First St.
Hill, Anthony J., 630 N. Eleventh St.
Hill, G. Alvin, 1524 Chestnut St.
Hill, Howard Kennedy, 314 S. Seventeenth St.
Hilly, Joseph F., 724 N. Fortieth St.
Hinkle, William M., 1323 N. Thirteenth St.
Hinsdale, Guy, Hot Springs, Virginia.
Hirsch, Charles S., S.-W. Cor. Ninth and Pine Sts.
Hirsch, Otto Christian, 905 W. Lehigh Ave.
Hirschler, Rose, 126 S. Seventeenth St.
Hirsh, A. Bern, 22 S. Twenty-First St.
Hirst, Barton Cooke, 1821 Spruce St.
Hirst, John Cooke, 1823 Pine St.
Hitschler, William A., 1212 Spruce St.
Hoban, Charles J., 1609 S. Broad St.
Hobensack, J. Rex, 1706 Columbia Ave.
Hockaday, Agnes, 20 E. Baltimore Ave., Lansdowne (Del. Co.).
Hodge, Edward B., 346 S. Sixteenth St.
Hofkin, Adolph F., 922 N. Fifth St.
Holland, James W., 2006 Chestnut St.
Hollingshead, Irving W., 123 S. Eighteenth St.
Hollopeter, William C., 1411 Spruce St.
Holloway, Thomas Beaver, 4307 Baltimore Ave.
Holmes, E. Burvill, 219 S. Forty-First St.
Holmes, John W., 6201 Lansdowne Ave.
Holtzhauser, George J., 160 W. Girard Ave.
Hooker, Richard S., 110 S. Nineteenth St.
Hopkins, Arthur H., 1804 Pine St.
Hopkins, Frederick M., 107 N. Fifty-Seventh St.
Hopkinson, Oliver, 1424 Spruce St.
Hopkinson, Richard Dale, 217 Summit Ave., Jenkintown (Montg. Co.).
Horgan, Edward, 1833 Chestnut St.
Horne, Joseph A., Oak Lane.
Horne, S. Hamill, 324 S. Sixteenth St.
Hornstine, Harry H., 615 N. Seventh St.
Hornstine, Nathan H., 530 Spruce St.
Horwitz, Ellis B., 3010 Diamond St.
Houghton, Charles W., Royal Apts., Broad St. and Girard Ave.
Houser, Louis J., 804 Race St.
How, Harold W., S.-E. Cor. Locust and 15th Sts.
Howell, Archibald A., 1413 S. Fifty-Eighth St.
Hoyt, Daniel M., 3604 Chestnut St.
Hudson, Harry, 1602 Erie Ave.
Hughes, William E., 3945 Chestnut St.
Hulsizer, Greene R., 1517 N. Fifteenth St.
Hume, John Elias, 900 S. Forty-Ninth St.
Humphreys, Edward, 153 N. Fifteenth St.
Hungerbuehler, John C., 1530 N. Franklin St.
Hunsicker, Hanna M., Olney, Philadelphia.
Hunt, Charles J., Clifton Springs, N. Y.
Hunt, Laura Emma, 213 S. Seventeenth St.
Hunter, John W., 2042 Pine St.
Hunter, Robert John, 928 N. Sixty-Third St.
Hurlock, Frank I., 2831 Diamond St.
Husik, David N., 1303 Locust St.
Hustead, Frank Humbert, 5115 Old York Road.
Huston, David T., 1809 Chestnut St.
Huttenlock, Robert E., 1122 E. Columbia Ave.
Hutton, Frederick C., 1438 N. Fifteenth St.
Immerman, Samuel Leon, 1812 E. Passyunk Ave.
Ingham, Samuel D., 1831 Chestnut St.
Ingle, Henry B., 1937 Fairmount Ave.
Ingraham, S. Cooke, 125 Sumac St.
Irwin, James A., 2019 S. Broad St.
Irwin, William, 634 Snyder Ave.
Jackson, J. Allen, Philadelphia Hospital for the Insane, Pine and Thirty-Fourth Sts.
Jacob, Louis H., 141 W. Susquehanna Ave.
Jacob, Moses, 1316 S. Fifth St.
Jacobs, Leopold M., 1327 N. Fifteenth St.
Jaffe, Jacob K., 526 N. Fourth St.
Jameson, Howard Leon, 2133 S. Sixteenth St.
John, Rutherford L., 248 S. Twenty-First St.
Johnson, Elmer E., 2455 N. Thirty-Third St.
Johnson, George E., 5441 Chester Ave.
Johnson, Russell H., East Bell's Mill Rd., C. H.
Johnson, William N., 6460 Germantown Ave.
Johnson, William T., 4729 Baltimore Ave.
Johnston, D. Howard, 3809 Chestnut St.
Jonas, Leon, 2253 N. Seventeenth St.
Jones, A. Arthur, 1812 Jefferson St.
Jones, Charles J., 1507 Locust St.
Jones, Clifford B., 5035 Wayne Ave., Gtn.
Jones, Eleanor C., 1531 N. Fifteenth St.
Jones, Isaac Hampshur, 1831 Chestnut St.
Jones, John F. X., 1815 Spruce St.
Jones, Thomas E., 145 W. Susquehanna Ave.
Jopson, John H., 1824 Pine St.
Jordan, Thomas B. L., Cape Charles, Va.
Judd, Clarence Wrigley, 4413 Richmond St.
Judson, Charles F., 1005 Spruce St.
Jump, Henry D., 4634 Chester Ave.
Jurist, Louis, 916 N. Broad St.
Kahn, Bernard L., 2125 S. Fourth St.
Kalteyer, Frederick J., 1533 Pine St.

Kamerly, E. Forest, Jr., 1130 Spruce St.
Kane, Clinton A., 1600 Mt. Vernon St.
Kane, Leo A., 2658 E. Thompson St.
Kapp, David, 1322 N. Thirteenth St.
Karpeles, Maurice J., 146 W. Chelten Ave., Gtn.
Katar, Felix M., 123 S. Thirty-Seventh St.
Katzenstein, George P., 1915 N. Broad St.
Kauders, H. Randle, 704 E. Chelten Ave.
Kaufman, A. Spencer, 254 S. Sixteenth St.
Kaufman, Isadore, 1726 Memorial Ave.
Keating, F. Raymond, 2100 S. Seventeenth St.
Keeler, J. Clarence, 254 S. Sixteenth St.
Keely, Henry Edgar, 1640 Green St.
Keely, Robert N., Browns Mills In-the-Pines, N. J.
Keen, William W., 1729 Chestnut St.
Keene, Floyd E., 116 S. Nineteenth St.
Kehler, B. Frank, Norwood (Del. Co.).
Keilty, Robert A., Med. Lab., Univ. of Penna.
Keiser, Elmer E., 6933 Tulip St., Tacony.
Keller, Albert P., 136 Race St.
Kellner, Henry C. F., 1337 E. Montgomery Ave.
Kelly, Francis J., 407 S. Forty-Second St.
Kelly, James A., 1510 N. Seventeenth St.
Kelly, Joseph V., 138 Rector St., Manayunk.
Kelly, Thomas C., 105 School Lane, Gtn.
Kelsey, Ernest W., 1217 Spruce St.
Kempton, Augustus F., 2118 Pine St.
Kennedy, Daniel J., 2501 S. Nineteenth St.
Kennedy, James J., 2328 E. Allegheny Ave.
Kennedy, James W., 241 N. Eighteenth St.
Kercher, Delno E., 1534 Pine St.
Kerns, Samuel P., 1432 Diamond St.
Kevin, R. Oliver, 1315 S. Fifteenth St.
Kilduffe, Robert, 25 E. Broad St., Chester (Del. Co.).
Killian, Frederick W., 3725 Spring Garden St.
Kimmelman, Louis, 2401 N. Fifth St.
Kimmelman, Simon, S.-W. Cor. 8th St. & Snyder Ave.
Kindbom, Hanna, 1507 Poplar St.
Kinne, Howard S., 747 Arch St., Williamsport (Lycoming Co.).
Kinney, Willard H., 124 S. Eighteenth St.
Kirby, Ellwood R., 1202 Spruce St.
Kirk, George W., 1427 Girard Ave.
Kirkbride, M. Frank, 2212 Green St.
Kirkpatrick, Andrew B., 1742 N. Fifteenth St.
Kirschbaum, Helen, 1303 Locust St.
Kitchen, Joseph S., 1526 S. Fifteenth St.
Kitchen, Philip G., West Chester Pike, Highland Park, Llanerch (Del. Co.).
Klapp, Wilbur P., 1716 Spruce St.
Klauder, Joseph V., 1701 Chestnut St.
Klein, Alexander, 321 S. Eleventh St.
Klein, Thomas, 248 S. Seventeenth St.
Klemm, Adam, 1204 W. Lehigh Ave.
Klimas, Enoch G., 2700 E. Ann St.
Kline, Harvey W., 3636 N. Seventeenth St.
Klopp, Edward Jonathan, 1223 Spruce St.
Klopp, Eli L., Oak Lane, Philadelphia.
Klopp, Peter P., 618 W. Lehigh Ave.
Knipe, Jay C., 2035 Chestnut St.
Knipe, Norman L., 701 S. Fifty-Second St.
Knorr, John K., Jr., 2235 N. Sixteenth St.
Knowles, Frank C., 2022 Spruce St.
Knowles, George A., 4812 Baltimore Ave.
Knowles, Mary Gilbert, 1709 Pine St.
Knox, Andrew, 501 E. Allegheny Ave.
Knox, Henry, 5000 Spruce St.
Kobler, Henry B., 658 N. Sixty-Third St.
Koder, Charles A., 2458 N. Sixteenth St.
Koenig, Augustus, 1324 Pine St.
Koenig, Carl F., 1734 Harrison St.
Kohn, Bernard, 1516 N. Fifteenth St.
Kohn, Louis Winfield, 1402 Spruce St.
Kolmer, John Albert, 927 S. St. Bernard St.
Kraker, Florence E., 1225 Spruce St.
Krall, John T., 1421 Chestnut St.
Kramer, David Warren, 1819 Chestnut St.
Kraus, Gabriel J., 3153 Richmond St.
Krauss, Frederick, 1701 Chestnut St.
Kremer, Walter H., 5904 Greene St., Gtn.
Krumbhaar, Edw. B., W. Mermaid Lane, St. Martins.
Krusen, Wilmer, 127 N. Twentieth St.
Kuehner, Howard M., 2174 E. York St.
Kurtz, Arthur D., 2520 N. Twenty-Second St.
Kyle, E. Bryan, D. I. Monta Vista Apts.
Lacy, Henry A., 743 N. Seventeenth St.
Laessle, Henry A., 5900 Market St.
Laird, J. Packard, Devon (Chester Co.).
Lammer, Francis J., 2266 N. Nineteenth St.
Lamparter, Eugene, Green Lane (Montg. Co.).
Landis, Henry R. M., 11 S. Twenty-First St.
Lane, Dudley W., 2237 N. Twenty-Ninth St.
Lane, Peter H., 186 Bethlehem Pike, C. H.
Langdon, H. Maxwell, 2018 Chestnut St.
Laplace, Ernest, 1828 S. Rittenhouse Sq.
Larer, Richard W., 1407 E. Columbia Ave.
Large, Octavus P., 29th St. and Susquehanna Ave.
Latchford, O. Luther, 1607 N. Fifteenth St.
Lathrop, Ruth Webster, 1415 N. Seventeenth St.
Latta, Samuel W., 3602 Powelton Ave.
Lau, Scott W., N.-E. Cor Fifteenth and Ritner Sts.
Lautenbach, Louis J., 33 S. Sixteenth St.
Lawrence, Granville A., 1418 Erie Ave.
Lawrence, J. Stewart, 405 S. Forty-Second St.
Laws, George M., 2033 Locust St.
Leach, Wilmon W., 2118 Spruce St.
Leaman, Enos H., 3440 N. Second St.
Leaman, Henry, 832 N. Broad St.
Leaman, William G., 3700 Baring St.
Leavitt, Frederick H., 1519 Pine St.
Lebo, D. Austin, 2317 W. Somerset St.
LeBoutillier, Theodore, 9 S. Twenty-First St.
LeConte, Robert G., 1530 Locust St.
Lee, Walter Estell, 905 Pine St.
Leedom, John, 725 W. Allegheny Ave.
LeFever, Charles W., 1708 Pine St.
Leffmann, Henry, Mercantile Library.
LeGates, Charles A., Mt. Pocono (Monroe Co.).
Lehman, Frederick C., 2501 Columbia Ave.
Lehrfeld, Louis, 702 S. Sixtieth St.
Leidy, C. Fontaine-Maury, 404 S. Sixteenth St.
Leidy, Joseph, 1319 Locust St.
Lennon, James S., 1608 Christian St.
Leof, Morris V., 1700 N. Franklin St.
Leonard, Charles F., 2025 S. Tenth St.
Leonard, Edward A., Jr., Phila. Gen. Hosp., Pine and Thirty-Fourth Sts.
Leopold, Samuel, 318 S. Fifteenth St.
Leopold, Simon S., 1428 N. Broad St.
Levan, George F., 733 N. Forty-First St.
Levi, I. Valentine, 1736 N. Sixteenth St.
Levin, Samuel Fillmore, 619 S. Tenth St.
Levis, George E., 4523 Frankford Ave.
Levitt, Michael L., 1224 S. Fourth St.
Levy, David W., 1122 E. Palmer St.
Levy, Jacob, 1920 S. Fifth St.
Lewis, Clarence J., 7004 Torresdale Ave., Tacony.
Lewis, Daniel W., 3149 N. Twenty-Second St.
Lewis, Fielding O., 261 S. Seventeenth St.
Lewis, John Francis, 37 N. Fifty-Sixth St.
Lewis, Mary R. Hadley, 46 N. Fortieth St.
Lewis, Morris J., 1316 Locust St.
Lichtenwalner-Myers, Sarah, 34 W. Pomona St., Gtn.
Liggett, Samuel J., 936 W. Lehigh Ave.
Lincoln, Clarence W., Wayne (Delaware Co.).
Lindauer, Eugene, 2018 N. Thirty-Second St.
Lippert, Frieda E., 1716 N. Eighteenth St.
Lippincott, Edmund N., Oak Lane.
Llewellyn, Thomas H., 715 N. Fortieth St.
Lloyd, J. Hendrie, 116 S. Twenty-First St.
Lockrey, Sarah H., 1701 Chestnut St.
Lodholz, Edward, 3103 Diamond St.
Loeb, Ludwig, 1421 N. Fifteenth St.
Loeb, Victor A., 1622 N. Fifteenth St.

Loewenberg, Samuel A., 1208 Spruce St.
Long, Samuel C., 1716 N. Sixteenth St.
Long, William H., 4657 Lancaster Ave.
Longaker, Daniel, 1402 N. Sixteenth St.
Longaker, Edwin P., 1402 N. Sixteenth St.
Longaker, Horace G., 5215 Ridge Ave.
Longdon, Mary M. C., c/o F. J. Longdon, Hottoplate Garden, Oak Lane.
Longenecker, Christian B., 3416 Baring St.
Longshore, Howard K., 1503 Locust St.
Longshore, J. Bartley, 3150 N. Broad St.
Loughrey, Thomas P., 5545 Morton St., Gtn.
Loux, Hiram R., 1819 Walnut St.
Love, Julius D., 315 Pine St.
Love, Louis F., 1305 Locust St.
Lowa, Walter, 653 N. Broad St.
Lowenburg, Harry, 1927 N. Broad St.
Luburg, Leon F., 1822 Girard Ave.
Lucus, Walter S., Wynnewood (Montg. Co.).
Ludlum, Seymour D., 216 S. Fifteenth St.
Ludy, John B., Lieut. M. R. C., U. S. A., Hawaii Dept.
Lukens, Robert M., 1308 Hunting Park Ave.
Lupin, Emanuel J., 2221 N. Thirty-Third St.
Lutz, Hiram L., 5525 Woodland Ave.
Lynch, Frank B., Jr., 5413 Sansom St.
Lynch, John J., 4280 Paul St.
Lyon, B. B. Vincent, 1828 Pine St.
Lytle, I. Walter, 1527 N. Twentieth St.
McAllister, Anna M., 3503 Baring St.
McAniff, Hugh P., 2413 N. Seventh St.
McCalmont, William S., 746 N. Sixty-Third St.
McCarthy, Cornelius T., 6 S. Thirty-Eighth St.
McCarthy, Daniel J., 2025 Walnut St.
McCarthy, Patrick A., 136 E. Price St., Gtn.
McClary, Samuel, III, 4610 Spruce St.
McCombs, Robert S., 262 S. Seventeenth St.
McCombs, William, 723 N. Eleventh St.
McConihay, Clarence W., 227 S. Ninth St.
McCormick, John A., 1311 N. Nineteenth St.
McCrae, Thomas, 1627 Spruce St.
McCreight, Robert, 1340 E. Montgomery Ave.
McCullough, Francis J., 1512 S. Tenth St.
McDaniel, Earl L., 1325 Erie Ave.
McDevitt, Charles H., 4552 Wayne Ave., Gtn.
McDougald, John Q., 1336 Lombard St.
McDowell, James E., 5006 Walnut St.
McDowell, Norris Stanley, 1529 W. Columbia Ave.
McDowell, Samuel B., 925 N. Broad St.
McFarland, Joseph, 442 W. Stafford St., Gtn.
McGinnis, Arthur, Cor. Logan and Greene Sts., Gtn.
McGlinn, John A., 113 S. Twentieth St.
McGuigan, John I., Perry Bldg.
McIlvain, Edwin Hulme, 3801 N. Seventeenth St.
McIntire, Benjamin M., 4843 Baltimore Ave.
McKeage, William, 3131 N. Broad St.
McKee, James H., 1402 Spruce St.
McKeldin, Robert A. W., 5342 Catharine St.
McKellar, Ruth Alexander, Beretania Ave, Honolulu, Hawaii.
McKenzie, R. Tait, 2014 Pine St.
McKinley, Archibald L., 3702 N. Broad St.
McLaughlin, John J., 1606 S. Broad St.
McLean, John D., 1538 S. Broad St.
McLernon, John, 2636 Federal St.
McMonagle, James W., 1147 Snyder Ave.
McNerney, Aloysius F., 1806 N. Twenty-Third St.
McQuaid, Florence Q., 1336 Pine St.
MacCarroll, D. Randall, 915 S. Forty-Seventh St.
MacCoy, Alexander W., 216 S. Fifteenth St.
MacCracken, George Y., 612 N. Thirteenth St.
Macfarland, Frank H., 2046 Chestnut St.
Macfarlane, Catharine, 5808 Greene St., Gtn.
MacIntosh, William, 511 Green St.
MacKay, William H. G., 1416 N. Sixteenth St.
Mackenzie, Alice V. C., 1831 Chestnut St.
Mackenzie, George W., 1831 Chestnut St.
Mackinney, William H., 1701 Chestnut St.
MacSorley, Harriet E., 5634 Thomas Ave.
Maier, Ernest G., 1323 N. Fifteenth St.
Maier, Frederick Hurst, 2035 Chestnut St.
Major, C. Percy, Tenth St. and Oak Lane.
Mallon, Edward A., 1606 N. Seventeenth St.
Manges, Willis F., 235 S. Fifteenth St.
Mann, Benjamin H., 1603 S. Fifth St.
Mann, Bernard, 107 N. Sixtieth St.
Mann, James P., 1234 Spring Garden St.
Mann, Victor L., Chuharkana, Dist. Gujranwah, Punjab, India.
Manning, Charles L., 1818 Tioga St.
Mantz, Francis A., 227 N. Eighteenth St.
Markowitz, Morris, 1001 N. Sixth St.
Marks, Morris, 607 N. Sixth St.
Marshall, Clara, 258 S. Sixteenth St.
Marshall, George M., 1819 Spruce St.
Marter, Linnaeus E., 1631 Race St.
Martin, Collier F., 1831 Chestnut St.
Martin, Edward, 1506 Locust St.
Martin, Joseph, 2009 Columbia Ave.
Martin, Niles, 246 S. Forty-fifth St.
Martin, Sargeant Price, 822 W. College St., Rochester, Minn.
Martin, William Orlando, 4268 Paul St.
Marvel, Henry V., 4839 Baltimore Ave.
Masland, Harvey C., 2130 N. Nineteenth St.
Massey, G. Betton, 1823 Wallace St.
Mather, Homer R., c/o P. R. R., Derry (Westm. Co.).
Mathews, Abel J., Spencer St., West of Old York Rd.
Mathews, Franklin, 905 West Lehigh Ave.
Mathews, William, 728 West Lehigh Ave.
Matlack, Frank S., 4601 Old York Road.
Mayor, Charles A., 1006 Ritner St.
Mays, Thomas J., 1829 Spruce St.
Mazer, Charles, 1603 S. Sixth St.
Mazor, Samuel, 445 Ritner St.
Mecluskey, John F., 2622 N. Seventeenth St.
Megargee, George L., 1 Madison Ave., New York.
Meine, Berta M., 2301 N. College Ave.
Meisle, Frederick A., 150 Richmond St.
Mellor, John, 2045 Margaret St.
Melman, Ralph J., 933 N. Sixth St.
Menah, William M., 143 North Twentieth St.
Mencke, J. Bernard, 908 N. Sixteenth St.
Merrill, William J., 1927 Chestnut St.
Merscher, Harry Leonard, 2217 N. Broad St.
Merscher, Washington, 554 E. Washington Lane, Gtn.
Mershon, Oliver F., 2305 Christian St.
Messing, Max, 1736 S. Fifth St.
Metheny, S. A. Sterrett, 617 N. Forty-Third St.
Meyerhoff, Irwin S., 1727 N. Sixteenth St.
Meyers, Milton K., 1529 S. Broad St.
Michener, Evan W., 3708 N. Broad St.
Mill, George, 214 McKean St., Gtn.
Miller, Albert G., 2150 N. Twenty-First St.
Miller, Charles Scott, 1218 Wyoming Ave.
Miller, Edwin B., 2351 E. Cumberland St.
Miller, George B., 1942 N. Broad St.
Miller, Mary T., 313 N. Thirty-Third St.
Miller, Morris B., 2117 Pine St.
Miller, T. Grier, 1805 Pine St.
Miller, W. Edward, 122 Main St., Darby (Del. Co.).
Milligan, Alice H. B., 4620 Kingsessing Ave.
Milliken, Fred H., 3716 Walnut St.
Mills, Charles K., 1909 Chestnut St.
Mills, H. Brooker, 1411 Spruce St.
Minton, Henry McKee, 1130 S. Eighteenth St.
Mintzer, George S., 2416 S. Broad St.
Missett, Joseph V., S.-W. Cor. 63d and Race Sts.
Mitchell, A. Graeme, 1805 Pine St.
Mitchell, Charles F., 342 S. Fifteenth St.
Mitchell, Edward K., 710 W. Lehigh Ave.
Mitchell, William C., 1700 Diamond St.
Mitterling, Stephen, 5741 Baltimore Ave.
Modell, Daniel A., 1217 Fishers Lane, Logan.

Mohler, Henry K., 267 S. Fifty-Fifth St.
Mongel, Ernest B., 1429 Tioga St.
Montealegre, Edgar, Abangarez Gold Fields, Puntarenas, Costa Rica.
Montgomery, Charles M., 2210 Locust St.
Montgomery, Edward E., 1426 Spruce St.
Mooney, Thomas H., 2808 Wharton St.
Moore, Albert M., 1229 Ritner St.
Moore, C. Howard, 2717 W. Lehigh Ave.
Moore, Cyrus C., 2118 N. Hancock St.
Moore, Edward J., 1538 N. Fifteenth St.
Moore, Eugene A., 103 N. Fifty-Fourth St.
Moore, John D., 1940 N. Broad St.
Moore, Joseph A., 1216 N. Sixth St.
Moore, Philip H., 1225 Spruce St.
Moore, William F., Llanerch (Delaware Co.).
Moorhead, Stirling W., 1523 Pine St.
Moorhead, William W., 1523 Pine St.
Morell, Charles Joseph, 5253 Spruce St.
Morford, William Brown, 1534 S. Broad St.
Morgan, Arthur C., 3118 Diamond St.
Moriarty, Charles A., 1641 Fairmount Ave.
Morris, Casper, Jr., 2050 Locust St.
Morris, Elliston J., 128 S. Eighteenth St.
Morris, J. Cheston, 1514 Spruce St.
Morrison, Wm. H., 8021 Frankford Ave., Holmesburg.
Morrow, James A., 2038 S. Fifth St.
Morton, Dudley J., 2141 Locust St.
Morton, George D., Honeybrook (Chester Co.).
Morton, Samuel W., 1933 Chestnut St.
Moss, Morris I., 869 N. Seventh St.
Moss, Samuel, 321 Pine St.
Moulton, Percy D., 900 E. Chelten Ave., Gtn.
Moxey, Albert F., 12 E. Mt. Pleasant Ave., Mt. Airy, Philadelphia.
Moylan, John J., 228 E. Price St., Gtn.
Moylan, Peter F., 1005 N. Sixth St.
Mudgett, John H., 2028 N. Thirteenth St.
Muellerschoen, George J., 1727 N. Fifteenth St.
Mulford, Leslie F., 922 N. Sixty-Third St.
Müller, Andrew J., 1136 N. Third St.
Müller, George P., 1729 Pine St.
Müller, Rudolph E., 2031 S. Broad St.
Müller, Wm. K., 6004 Greene St. Gtn.
Mulrenan, John P., 1228 S. Broad St.
Munson, Henry G., 4935 Catharine St.
Murphy, Eugene C., 2201 Spring Garden St.
Murphy, Frank A., 3019 Richmond St.
Murphy, John A., Cornwells Heights (Bucks Co.).
Murray, Bernard J., 48 W. Johnson St., Gtn.
Musser, John H., Jr., 121 S. Twentieth St.
Mutschler, Louis H., 2030 Tioga St.
Myers, Israel, 1504 N. Seventh St.
Myers, Tallyrand D., 231 Story Bldg., Los Angeles.
Narr, Frederick C., 1636 S. Eighteenth St.
Nassau, Charles F., 1831 Chestnut St.
Neel, Henry A. P., 3602 Disston St.
Neff, Joseph S., Narberth (Montg. Co.).
Neilson, Thomas R., 1937 Chestnut St.
Nelson, Wilhelmina T. M., State Home, Vineland, N.J.
Newcomet, William S., 3501 Baring St.
Newlin, Arthur, 1804 Pine St.
Newmayer, Solomon W., 1834 Girard Ave.
Newnam, Henry J. E., 258 S. Twentieth St.
Newton, Robley D., 6137 Vine St.
Nichols, William, 2022 Bainbridge St.
Nicholson, William R., 1731 Pine St.
Nock, Thomas O., 821 N. Twenty-Fourth St.
Nofer, George H., 1759 Frankford Ave.
Norris, Charles C., 1503 Locust St.
Norris, George W., 1530 Locust St.
Norris, Richard C., 500 N. Twentieth St.
O'Boyle, Cyril P., 211 N. Fifty-Fourth St.
O'Brien, Matthew C., 6377 Sherman St., Gtn.
O'Brien, Theo. Wallace, Murray Hosp., Butte, Mont.
O'Connell, John A., 2130 Pine St.
O'Drain, Thomas L., 2546 E. Allegheny Ave.
O'Hara, Michaél, Jr., 2018 Pine St.
O'Hara, Thomas A., 227 S. Twentieth St.
O'Harrow, Lydia Marion, Friends Hosp., Fkd.
O'Malley, Austin, 2228 S. Broad St.
O'Neill, Francis C., 1725 Ritner St.
O'Neill, Joseph F., 1809 Vine St.
O'Reilly, Charles A., 1829 Chestnut St.
O'Rourke, Timothy M., N.W. Cor. Wallace and 22d Sts.
Off, Henry J., 115 S. Twentieth St.
Old, Herbert, Chestnut and Fourth Sts., Care of Provident Life and Trust Co.
Oliensis, Abraham E., 707 Spruce St.
Olsho, Sidney L., 235 S. Fifteenth St.
Osmond, Anna R., Philadelphia County Prison, Tenth and Reed Sts.
Osmond, Martha E., 6952 Torresdale Ave., Tacony.
Ostheimer, Alfred J., 2025 Walnut St.
Ostheimer, Maurice, 2202 DeLancey St.
Ott, Lambert, 831 N. Broad St.
Ottinger, Samuel J., Twelfth and Master Sts.
Outerbridge, George Whitney, 2039 Chestnut St.
Owen, Hubley R., 319 S. Sixteenth St.
Owen, John J., 411 Pine St.
Packard, Francis R., 304 S. Nineteenth St.
Page, Henry F., 315 S. Sixteenth St.
Paist, Henry C., 1226 N. Franklin St.
Pancoast, Charles S., 205 Cooper St., Camden, N. J.
Pancoast, Henry K., Box 203, Bala (Montg. Co.).
Pancoast, J. William, 1611 N. Thirteenth St.
Parish, Benjamin D., 29 S. Nineteenth St.
Park, Frederick S., 4106 Girard Ave.
Parke, J. Richardson, 902 Spruce St.
Parke, William E., 1739 N. Seventeenth St.
Parker, Edward A., 1831 Chestnut St.
Parker, J. Sparks, 6805 Woodland Ave.
Parker, Ray, State Hosp., Norristown (Montg. Co.).
Parkinson, William N., 209 N. Sixtieth St.
Parrish, Robert C., 5301 Chester Ave.
Patterson, Francis D., 2103 Locust St.
Patterson, Ross V., 340 S. Sixteenth St.
Pearce, Richard Mills, 2114 DeLancey St.
Pearson, John S., 1507 Christian St.
Pease, Theodore N., 5800 Spruce St.
Peck, Elizabeth L., 4113 Walnut St.
Pelouze, Percy Starr, 1831 Chestnut St.
Pemberton, Ralph, 2224 Locust St.
Penrose, Charles B., 1720 Spruce St.
Penza, John G., 921 Federal St.
Peoples, John, 871 N. Twentieth St.
Pepper, O. H. Perry, 1811 Spruce St.
Percival, M. Frasier, 2332 South Broad St.
Perkins, Francis M., 320 S. Fifteenth St.
Perlman, Horace D., 1932 N. Seventh St.
Pessolano, Joseph A., 610 Fitzwater St.
Peter, Luther C., 1700 Oxford St.
Petery, Arthur K., 1536 Diamond St.
Petty, Orlando H., 6215 Ridge Ave.
Pfahler, George E., 1321 Spruce St.
Pfeiffer, Damon B., 2028 Pine St.
Pfromm, George W., 1431 N. Fifteenth St.
Phelps, George F., 6019 Lansdowne Ave.
Phillips, Horace, Supplees Lane, Overbrook, Box 124.
Phillips, James R., 1827 S. Eighteenth St.
Phillips, Richard J., 123 S. Thirty-Ninth St.
Picard, Henry L., 1922 Race St.
Pickett, Elizabeth L., Aldan (Delaware Co.).
Piersol, George A., 4724 Chester Ave.
Piersol, George Morris, 1913 Spruce St.
Pike, Charles P., 7282 Woodland, Ave.
Pilkington, Albert, 816 S. Sixteenth St.
Pilkington, Horatio, 4238 Paul St., Fkd.
Pilling, George P., Jr., 4044 Chestnut St.
Piper, Edmund B., 1805 Pine St.
Plass, Chas. F. W., Chelten Ave. and Chew St., Gtn.
Platt, Charles, Hamilton Court, Chestnut and Thirty-Ninth Sts.
Pleibel, Eugene Theodore, 3733 N. Marshall St.

Podolski, Louis A., 1117 W. Lehigh Ave.
Pontius, Paul J., 1831 Chestnut St.
Posey, Wm. C., N.E. Cor. 21st and Chestnut Sts.
Potsdamer, Joseph B., 1818 N. Broad St.
Pottberg, Charles, 2338 N. Broad St.
Potter, Ellen C., 5138 Wayne Ave., Gtn.
Potts, Charles S., 2018 Chestnut St.
Powell, William Elwood, 2357 E. Dauphin St.
Powell, Tamlin Lincoln, 2111 Master St.
Price, Charles E., 316 N. Fifty-Second St.
Price, George E., 1830 S. Rittenhouse Sq.
Pritchard, William C., 5616 Spruce St.
Propper, Julius, 4502 Baker St., Mynk.
Purnell, Caroline M., 132 S. Eighteenth St.
Pyle, Walter L., 1931 Chestnut St.
Quicksall, William E., 5121 Baltimore Ave.
Raby, Mahlon R., 5430 Wayne Ave., Gtn.
Radcliffe, McCluney, 1906 Chestnut St.
Raftery, John, Grant Ave., Torresdale, Philadelphia.
Rainear, A. Rusling, 2024 Diamond St.
Rainville, Joseph A., 1312 Porter St.
Ramsey, William G., 1430 S. Broad St.
Ramspacher, Theodore F., 1411 E. Moyamensing Ave.
Randall, Alexander, 1831 Chestnut St.
Randall, B. Alexander, 1717 Locust St.
Ransley, Alexander W., 309 S. Sixteenth St.
Raudenbush, James S., 3633 N. Fifteenth St.
Reckefuss, Charles H., Jr., 506 N. Sixth St.
Reddie, Jacobina S., 1737 N. Redfield St., West Phila.
Reed, Howard, 1829 Diamond St.
Reeves, Joseph M., 1916 Spruce St.
Reeves, Rufus Sargent, 1916 Spruce St.
Rehfuss, Martin E., 1934 Chestnut St.
Reiff, E. Paul, 5051 Chestnut St.
Reimel, Clara, 723 W. Girard Ave.
Reiner, Alphons J., 2830 Girard Ave.
Reisert, William, 1507 S. Broad St.
Reiss, Abe, 910 N. Franklin St.
Remig, John H., 805 S. Twelfth St.
Renninger, A. Rutherford, 1337 Spruce St.
Repp, John J., 926 S. Sixtieth St.
Repplier, Sidney J., 102 East Mermaid Lane, C.H.
Reynolds, Charles B., 2003 Diamond St.
Rhein, John H. W., 1732 Pine St.
Rhein, Robert D., Fifteenth and Pine St.
Rhoads, Edward G., 159 W. Coulter St., Gtn.
Rhoads, Samuel, 152 School Lane, Gtn.
Richards, Florence H., 3708 Hamilton St.
Richardson, Neafie, Broad and Norris Sts.
Ridpath, Robert F., 1928 Chestnut St.
Riesman, David, 1715 Spruce St.
Righter, Harvey M, N.E. Cor. 51st and Spruce Sts.
Ring, G. Oram, 2014 Chestnut St.
Risley, Samuel D., 2018 Chestnut St.
Rivard, Ruth Miller, 5031 Woodland Ave.
Rivas, Damaso, Med. Dept., Univ. of Penna., Thirty-sixth and Pine Sts.
Rivkees, Aaron, 346 Wharton St.
Roberts, John B., 313 S. Seventeenth St.
Roberts, Mercedes A., 1144 S. Eleventh St.
Roberts, Walter, 1732 Spruce St.
Robertson, William E., 327 S. Seventeenth St.
Robinson, Edwin T., 1906 Pine St.
Robinson, William D., 2012 Mt. Vernon St.
Robrecht, John J., 3940 Chestnut St.
Roddy, John A., 1604 Pine St.
Roderer, John F., 2426 N. Sixth St.
Rodgers, George Ross, 4631 Wayne Ave., Gtn.
Rodman, J. Stewart, 2106 Walnut St.
Rogers, Asa H., 911 W. Indiana Ave.
Rommel, John C., 1511 Cayuga St.
Roper, William F., 5439 N. Fifth St.
Rosenberger, Randle C., 2330 N. Thirteenth St.
Rosenfeld, Samuel, 1641 S. Fifth St.
Rosenthal, Joseph Morris, 700 E. Chelten Ave., Gtn.
Ross, George G., 1721 Spruce St.
Ross, Joseph H., 106 W. Susquehanna Ave.
Ross, Thomas C., 1701 Harrison St., Fkd.
Rothkugel, Paul, 2462 N. Thirty-Second St.
Rothschild, Norman S., 1832 N. Seventeenth St.
Roussel, Albert E., 2108 Pine St.
Rovno, Philip, 423 Pine St.
Rowand, Alex H. C., 3704 Spring Garden St.
Royer, B. Franklin, Donaldson Bldg., Harrisburg (Dauphin Co.).
Rubenstone, Abraham I., 1704 E. Moyamensing Ave.
Ruff, Adolph, 2555 N. Eleventh St.
Ruff, William F., 420 Preston St.
Ruffel, Charles E., 244 E. Girard Ave.
Rugh, J. Torrance, 1616 Spruce St.
Runkle, Stuart C., 1605 Christian St.
Ruoff, William, 1301 N. Thirteenth St.
Rupert, Mary P. S., 1709 Pine St.
Russell, Charles T., Jr., 2521 E. Norris St.
Russell, Ella M., Chambersburg (Frank. Co.).
Ryan, Maria Page, 1246 S. Broad St.
Ryan, William J., 1535 Chestnut St.
Ryan, William J., 701 S. Fifty-Fifth St.
Ryan, William J., 1856 N. Twenty-Third St.
Saalfrank, Chas. W., Second St. Pike and Levick St.
Sailer, Joseph, 1718 Spruce St.
Sajous, Charles E. deM., 2043 Walnut St.
Sajous, Louis T. deM., 2043 Walnut St.
Sallom, Abdullah K., 1625 S. Fifteenth St.
Saltzman, Louis Andrew, 1530 S. Fifth St.
Sampson, Allen G., 2834 Columbia Ave.
Sargent, Albert Alonzo, 1308 Pine St.
Sartain, Paul J., 212 W. Logan Square.
Saunders, Griffin A., 2122 Fitzwater St.
Saunders, Robert Ritchie, 926 N. Fifteenth St.
Sautter, Albert C., 1421 Locust St.
Savidge, Edgar, 242 S. Twenty-First St.
Savitz, Samuel A., 1825 Tasker St.
Sawyer, William A., Kirklyn, Llanerch P.O. (Del.Co.).
Saxon, Gordon J., 5314 Spruce St.
Saylor, Edwin S., 2005 Chestnut St.
Schabinger, Charles, Thirteenth St. and Lindley Ave., Logan.
Schaeffer, Clarence W., 117 S. Twentieth St.
Schaeffer, J. Parsons, 4634 Spruce St.
Schaffle, Karl, Camp Hill (Cumb. Co.).
Schaller, Abraham L., 820 S. Fifth St.
Schamberg, Jay F., 1922 Spruce St.
Schantz, William A., 4533 Old York Road.
Schatz, Harry A., 1331 N. Franklin St.
Schaubel, Charles W., 2346 E. Norris St.
Schaul, Otto Daniel, 4920 Woodland Ave.
Scheehle, J. Evans, 1504 Christian St.
Schell, J. Thompson, 1832 Diamond St.
Schenberg, Joseph, 426 N. Fifty-Third St.
Schetky, Martha G. K., 911 S. Forty-Eighth St.
Schisler, Belle A., 2835 Diamond St.
Schleif, William, 2117 Chestnut St.
Schnabel, Truman G., 1805 Pine St.
Schneideman, Florence Mayo, 1831 Chestnut St.
Schneideman, Theodore B., 1831 Chestnut St.
Schneider, Charles J., 1930 N. Seventeenth St.
Schneyer, Julius, 1318 N. Franklin St.
Schoales, Charles B., 1428 N. Eleventh St.
Schock, Harvey E., 2048 Pine St.
Schoening, J. Jacob, 1908 N. Park Ave.
Scholl, Alfred K., 4514 Chester Ave.
Scholl, B. Frank, 1420 N. Seventeenth St.
Schoonmaker, Irving R., 5223 Chester Ave.
Schumann, Edward A., 15 Pelham Road, Gtn.
Schwartz, Bernard, 1020 Snyder Ave.
Schwartz, George J., Professional Bldg.
Schwartz, Morris, 202 Ritner St.
Schweinitz, George E. de, 1705 Walnut St.
Schwenk, Peter N. K., 1417 N. Broad St.
Schwerin, Justin G., 2113 N. Seventeenth St.
Scull, William B., 3024 Richmond St.
Seabold, William F., 5617 Spruce St.
Seabrook, Alice M., 22d St. and N. College Ave.

Segal, Bernhard, 1537 S. Sixth St.
Seiberling, Joseph D., 1807 Arch St.
Seidel, Victor I., 2338 N. Twenty-Ninth St.
Seifert, F. Robert, 2202 E. Cumberland St.
Seiler, Minnie Myrtle, 4017 N. Seventh St.
Seilikovitch, Solomon, 935 S. Third St.
Seiss, Ralph W., 255 S. Seventeenth St.
Seixas, Marie A., 68 Seamen Ave., New York, N. Y.
Seligman, Louis, 635 N. Franklin St.
Service, Charles A., City Ave., Bala (Montg. Co.).
Severs, G. Harvey, 3401 N. Front St.
Shaffer, George E., 3608 Richmond St.
Shaham, Simon, Ninth St. and Snyder Ave.
Shallow, Thomas A., 3621 Hamilton St.
Shammo, George C., 260 N. Fifty-Second St.
Shannon, Charles E. G., 1633 Spruce St.
Shaw, John Joseph, 4940 N. Broad St.
Shea, William Ker, 1705 N. Eighteenth St.
Sheaff, Philip A., 4006 Baring St.
Shellenberger, Jacob R., 5505 Germantown Ave.
Shepherd, Mary Emma, 1902 Diamond St.
Shepherd, Samuel G., 2333 Wharton St.
Shick, William B., 1330 Rockland St., Logan.
Shields, Wm. G., 412 School Lane, Gtn.
Shoemaker, George Erety, 1831 Chestnut St.
Shoemaker, Harvey, 2011 Chestnut St.
Shoemaker, William T., 109 S. Twentieth St.
Sholler, George W., 1224 W. Lehigh Ave.
Shrom, Ralph E., 1745 N. Seventeenth St.
Shuman, George H., 6221 Jefferson St.
Shumway, Edward A., 2007 Chestnut St.
Shurtleff, Henry C., 31 S. Fortieth St.
Shute, Harry A., 1408 N. Fifteenth St.
Siegel, Alvin E., 1717 Pine St.
Silverman, Abraham, 930 N. Eleventh St.
Simcox, Lawrence, 103 W. Walnut Lane, Gtn.
Simkins, James J., 2002 N. Twenty-First St.
Simmons, Clifford F., 1939 Hunting Park Ave.
Simsohn, Joseph S., 909 N. Franklin St.
Sinclair, John F., 4103 Walnut St.
Sinexon, Justus, 3243 Chestnut St.
Singer, Benjamin, 1410 N. Broad St.
Sinkler, Francis W., 1606 Walnut St.
Sinnamon, George 2204 E. York St.
Siter, E. Hillingsworth, 1818 S. Rittenhouse Sq.
Skillern, Penn G., 241 S. Thirteenth St.
Skillern, Penn G., Jr., 241 S. Thirteenth St.
Skillern, Ross Hall, 1928 Chestnut St.
Skillern, Samuel R., Montgomery Ave. and Bleddyn Rd., Ardmore (Montg. Co.).
Skillern, Samuel R., Jr., S.-E. Cor. Sixty-First and Carpenter Sts.
Slaughter, Charles H. P., 1602 S. Broad St.
Slaymaker, John M., 3502 Spring Garden St.
Small, John Hamilton, 914 S. Forty-Eighth St.
Small, William B., 2232 Green St.
Smiley, Anne E., 5203 Haverford Ave.
Smith, Alexis D., 5926 Greene St., Gtn.
Smith, Allen J., Thirty-Ninth and Locust Sts.
Smith, Caroline E., Perry Bldg., 16th and Chestnut.
Smith, Clarence D., 741 Spruce St.
Smith, Clarence N., 842 S. Fifty-Sixth St.
Smith, David D., 131 W. Coulter St., Gtn.
Smith, Henry A., N.E. Cor. Oxford and 16th Sts.
Smith, Joseph I., 1721 N. Seventeenth St.
Smith, J. Melvin, 1598 N. Fifty-Second St.
Smith, Rolla L., 2987 Richmond St.
Smith, Samuel C., 323 S. Eighteenth St.
Smith, S. MacCuen, 1429 Spruce St.
Smock, Ledru P., 3330 Chestnut St.
Snively, Andrew F., 5300 Market St.
Snively, Robley Dunglinson, 1709 Tioga St.
Snodgrass, Oliver E., 2350 N. Nineteenth St.
Snyder, Elizabeth, 2002 Columbia Ave.
Snyderman, Harry S., 1920 N. Seventh St.
Sohn, George W., 135 Green Lane, Manayunk.
Somers, Lewis S., 3554 N. Broad St.
Sonneborn, George A., 1200 W. Erie Ave.
Spaeth, William L. C., 5000 Jackson St.
Spangler, Ralph H., 2217 S. Broad St.
Speese, John, 2206 Locust St.
Speirs, George Campbell, 4831 Baltimore Ave.
Spencer, George W., 1734 S. Fifty-Eighth St.
Spiegle, Grace E., 2115 N. Twelfth St.
Spiess, Walter G., 717 W. Allegheny Ave.
Spiller, William G., Chestnut and Twenty-First Sts.
Spitz, Louis, 4112 Girard Ave.
Sprague, Frances R., 1930 Chestnut St.
Sprissler, Theodore, 601 S. Ninth St.
Stahl, B. Franklin, 1727 Pine St.
Staller, Max, 1310 S. Fifth St.
Stamm, Camille J., 1412 Diamond St.
Stanton, John Joseph, 2415 Columbia Ave.
Starck, Albert A. G., 6046 Christian St.
Stauffer, Nathan P., 218 S. Twentieth St.
Steel, William A., 3300 N. Broad St.
Steinbock, Frederick W., 1339 N. Thirteenth St.
Steiner, Samuel, 943 N. Fifth St.
Steinmetz, Charles G., Jr., 622 N. Fortieth St.
Stellwagen, Thomas C., Jr., 1831 Chestnut St.
Stelwagon, Henry W., 1634 Spruce St.
Stembler, Harry Abraham, 947 N. Sixth St.
Stengel, Alfred, 1728 Spruce St.
Sterling, Alexander, 1531 N. Sixth St.
Stevens, Arthur A., 314 S. Sixteenth St.
Stevens, William W., 5722 Chester Ave.
Steves, Ernest J., Presbyterian Hosp., 51 N. 39th St.
Stewart, Francis E., 11 W. Phil-Ellena St., Gtn.
Stewart, Francis T., 311 S. Twelfth St.
Stewart, Helen Montgomery, 205 S. Main St., Chambersburg (Frank. Co.).
Stewart, Thomas S., S.E. Cor. 18th and Spruce Sts.
Stiles, Charles M., 1831 Chestnut St.
Stiles, Francis A., 3801 Powelton Ave.
Stimson, Cheney M., 1801 Cayuga St.
Stires, Ferdinand T., 5900 Elmwood Ave.
Stirk, Jas. C., 734 Yale Ave., Swarthmore (Del.Co.).
Stirling, Samuel R., 1931 E. Cumberland St.
Stirling, Warren, 215 S. Forty-Ninth St.
Stone, Edward R., 1701 Master St.
Stout, George C., 1611 Walnut St.
Stout, P. Samuel, 4701 Chester Ave.
Strauss, Abram, 1226 Spruce St.
Strawbridge, I. Rendall, 1418 N. Fifteenth St.
Strecker, Edward A., 4401 Market St.
Strecker, Henry A., 1318 Pine St.
Strickler, Albert, 4037 Girard Ave.
Strittmatter, Isidor P., 999 N. Sixth St.
Strobel, John, 1907 N. Broad St.
Stroup, A. Clarke, 1245 S. Twenty-Third St.
Strouse, Frederic M., 1301 N. Broad St.
Strousse, Jacob L., 939 N. Eighth St.
Stryker, Samuel S., N.E. Cor. 39th and Walnut Sts.
Stuckert, Harry, 2116 N. Twenty-First St.
Sturtevant, Charles N., 4321 Frankford Ave.
Subers, Edith, 2430 Columbia Ave.
Suiter, David L., 218 E. Wyoming Ave.
Sullivan, Michael F., 2767 N. Twenty-Fifth St.
Sutliff, Fred A., 1901 Cayuga St.
Sutton, Howard A., 314 S. Fifteenth St.
Swalm, M. C. Edna, 4901 N. Thirteenth St.
Swalm, William A., 4901 N. Thirteenth St.
Swartley, William B., 6112 Germantown Ave.
Swayne, Eugene, 1712 Wallace St.
Sweeney, Edmund B., 1721 N. Sixteenth St.
Sweet, Joshua Edwin, 301 St. Marks Sq.
Sweet, William M., 1205 Spruce St.
Swindells, Walton C., 2049 Chestnut St.
Swoboda, Richard J., 143 E. Allegheny Ave.
Tallant, Alice Weld, 1200 Spruce St.
Talley, James E., 218 South Twentieth St.
Target, John D., 1112 Jackson St.
Tarrant, Alfred Overton, 748 S. Fifty-Seventh St.
Taylor, Charles F., 1520 Chestnut St.

Taylor, J. Madison, 1504 Pine St.
Taylor, Robert F., 2450 Amber St.
Taylor, William J., 1825 Pine St.
Taylor, William L., 1340 N. Twelfth St.
Teller, William H., 1713 Green St.
Templeton, John Y., R.D. 2, Portsmouth, Va.
Thissell, Henry N., S.E. Cor. Chelten Ave. and Camac St., Oak Lane.
Thomas, Anne H., 3808 Locust St.
Thomas, Barton K., 324 High St., Pottstown (Montg. Co.).
Thomas, Benjamin A., 116 S. Nineteenth St.
Thomas, Charles H., 3634 Chestnut St.
Thomas, Eb W., 1833 Chestnut St.
Thomas, Frank W., 27 E. Mt. Airy Ave., Gtn.
Thomas, George P., 2113 N. Seventh St.
Thomas, T. Turner, 2005 Chestnut St.
Thomas, W. Hersey, 1445 N. Seventeenth St.
Thompson, Frank A., 5108 Springfield Ave.
Thompson, Ross H., 5427 Baltimore Ave.
Thorington, James, 2031 Chestnut St.
Thornton, Edward Quinn, 1331 Pine St.
Thornton, Mary Bickings, 2703 W. Somerset St.
Thrush, M. Clayton, 3705 Spring Garden St.
Tinker, John S., 1836 S. Seventeenth St.
Toland, J. Hart, 2526 S. Broad St.
Toland, Joseph J., 1621 Harrison St., Fkd.
Tomlin, Almer N., 518 N. Fortieth St.
Topper, John Albert, 5250 Spruce St.
Torry, Robert G., 1716 Locust St.
Town, Edwin C., Jr., Narberth (Montg. Co.).
Tracy, Martha, 5138 Wayne Ave., Gtn.
Tracy, Stephen E., 1527 Spruce St.
Traganza, Frederick, 2009 N. Twenty-Second St.
Trau, Philip A., 1520 Diamond St.
Treacy, Alfred J. M., 2231 Wallace St.
Treichler, Elsie Rau, 1721 N. Thirty-Third St.
Trotman, James Augustus, 1608 Wharton St.
Tucker, Henry, 2000 Pine St.
Tullidge, George B., 843 N. Sixty-Third St.
Tully, Edgar Warren, 2400 N. Broad St.
Tunnell, S. Wilmer, 1430 W. Dauphin St.
Tunis, Joseph P., c/o Mr. E. E. Williams, 560 Drexel Bldg., Chestnut and Fifth Sts.
Turnbull, Charles S., 1935 Chestnut St.
Turner, Creighton H., 2504 S. Twentieth St.
Turner, John B., 1525 Christian St.
Turner, John H., III, 224 S. Forty-Fifth St.
Turner, John P., 1302 S. Eighteenth St.
Turner, Linton, 450 Lyceum Ave., Rxb.
Twaddell, Thomas P. H., 4203 Chester Ave.
Tyson, James, 1506 Spruce St.
Tyson, T. Mellor, 1506 Spruce St.
Ulanski, Benjamin, 4410 Germantown Ave.
Ullom, Josephus T., 24 Carpenter St., Gtn.
Ulman, Joseph F., 2629 N. Twenty-Ninth St.
Ulrich, George Alvin, 309 S. Twelfth St.
Umsted, William M., 2812 Oxford St.
Vaca, T. Seydel, 727 N. Sixty-Third St.
Vail, Wm. Penn, 1700 Walnut St.
Vance, David C., 2618 N. Eleventh St.
Vanderslice, Edward S., 127 S. Fifth St.
VanDervoort, Charles A., Flanders Bldg., Fifteenth and Walnut Sts.
Van Dolson, William W., 7153 Boyer St.
VanGasken, Frances C., 115 S. Twenty-Second St.
Van Korb, William, 5623 Wyalusing Ave.
VanPelt, William T., 1102 Weidner Bldg.
Vansant, Eugene L., 1929 Chestnut St.
Vattier, Louis Charles, 5900 Girard Ave.
Vaux, Norris W., 8901 Germantown Ave., C.H.
Vitansa, Fortunato, 1216 S. Thirteenth St.
Waage, Frederick O., 4525 Walnut St.
Wadsworth, William S., 3914 Baltimore Ave.
Wainwright, Maud, 5203 Walnut St.
Walker, Holmes, 5429 Lansdowne Ave.
Walker, Jacob, 532 Spruce St.
Walker, John K., 2038 Locust St.
Walker, John T., 1606 N. Eighth St.
Wallis, J. Edward, 2642 Richmond St.
Walsh, Joseph P., 2026 Chestnut St.
Walsh, William H., 43 Baxter Bldg.
Walter, Frederick J., 428 Palmetto Ave., Daytona, Fla.
Walters, B. Frank, Jr., Security Bank Bldg., Sioux City, Iowa.
Ward, E. Tillson, 1415 S. Broad St.
Warlow, Margaret A., 1718 S. Eighteenth St.
Warmuth, Mitchell P., 1701 Chestnut St.
Watson, Arthur W., 126 S. Eighteenth St.
Watson, Edward W., 38 S. Nineteenth St.
Watson, W. Newbold, 1337 Spruce St.
Watson, Walter W., 1712 Walnut St.
Watt, Charles Channing, Jr., Wayne Ave. and W. Hortter St., Gtn.
Weaver, Albert P., 879 Belmont Ave.
Weaver, W. Warren, 6105 Woodland Ave.
Weber, Edith M. Clime, 5906 N. Thirteenth St.
Weber, Harry F., 4601 Wayne Ave.
Weber, Randall J., 2403 N. Seventeenth St.
Weber, William L., 1101 W. Wyoming Ave.
Webster, Aubrey B., 4821 Baltimore Ave.
Weidman, Fred D., 242 N. Sixty-First St.
Weiland, Carl, 617 Vine St.
Weiland, Carl, Jr., 633 Vine St.
Weintraub, Sarah L., 1239 S. Broad St.
Weisenburg, Theodore H., 1909 Chestnut St.
Weiss, Hervey B., 1920 N. Howard St.
Welch, William M., 1411 Jefferson St.
Wells, Charles H., 3318 Lancaster Ave.
Wells, J. Ralston, 754 N. Fortieth St.
Wells, P. Frailey, 754 N. Fortieth St.
Wells, William H., 1135 Spruce St.
Wenner, Ellis Bruce, 3805 Baring St.
Wentz, B. Frank, 6602 Woodland Ave.
Wentzel, Mary, 3628 N. Broad St.
Werner, Julius L., 1533 S. Sixth St.
Wessels, Louis C., 1918 N. Twenty-Second St.
West, John W., 1125 Wallace St.
Westcott, Thompson S., 1720 Pine St.
Wetherill, Henry E., R.D.1, Phoenixville (Chester Co.).
Weyl, Esther M., 757 N. Twentieth St.
Whaland, Berta, 2335 Berks St.
Wharton, Henry R., 1725 Spruce St.
Whetstone, William B., 4820 Chester Ave.
Whitaker, William, 5448 Germantown Ave., Gtn.
Whitall, James Dawson, 2124 N. Twentieth St.
White, Abraham E., 2123 Jefferson St.
White, Courtland Y., 1808 Diamond St.
White, Frank, 1302 N. Broad St.
Whiteway, Harold M., 1924 Chestnut St.
Whiting, Albert D., 1523 Spruce St.
Whitlock-Ross, Elise, 1709 Pine St.
Widdowson, Frank R., 1438 N. Sixtieth St.
Wieder, Henry S., 2137 N. Fifteenth St.
Wiggins, Edward H., 4415 N. Uber St.
Wiggins, Susan W., 1918 Wallace St.
Wilcox, William B., 914 Belmont Ave.
Wiley, Harry E., 1440 S. Broad St.
Wiley, John J., 1413 Tioga St.
Wiley, Louis Russell, 600 West Olney St.
Wilkes, LeRoy A., 4623 Sansom St.
Willard, DeForest Porter, 1933 Chestnut St.
Willetts, Joseph E., 5150-5152 Jenkins Arcade Bldg., Pittsburgh (Alle. Co.).
Williams, Carl, 69 School Lane, Gtn.
Williams, Philip F., 121 S. Twentieth St.
Williams, Rachel R., Penna. Bldg., 15th and Chestnut.
Williamson, James, 2101 Tioga St.
Williamson, Katharine A., 237 S. Thirteenth St.
Willits, I. Pearson, 31 W. Walnut Lane, Germantown.
Willitts, Charles H., 212 S. Thirteenth St.
Wilmer, Harry B., 138 West Walnut Lane, Gtn.
Wilson, George, 5000 Walnut St.
Wilson, H. Augustus, 1611 Spruce St.

Wilson, James C., 1509 Walnut St.
Wilson, Samuel M., 1517 Arch St.
Winheld, Morris, 943 N. Fourth St.
Winter, S. Elizabeth, Inwood Sanitarium, W. Conshohocken (Montg. Co.).
Wise, Henry Moses, 1640 Erie Ave.
Wister, James W., 5430 Germantown Ave.
Wojczynski, Leo J., 1716 Hunting Park Ave.
Wolf, Wilbert J., 3474 Frankford Ave.
Wolfe, Samuel, 1701 Diamond St.
Wolferth, Charles C., Youngstown Hosp., Youngstown, Ohio.
Wolfson, Louis, 1735 N. Thirty-First St.
Wood, Alfred C., 2035 Walnut St.
Wood, George B., 129 S. Eighteenth St.
Wood, Horatio C., Jr., 434 S. Forty-Fourth St.
Wood, Walter A., 255 S. Sixteenth St.
Wood, William Charles, 1907 Chestnut St.
Woodbury, Frank, 218 S. Sixteenth St.
Woodward, George, 709 North American Bldg.
Woody, Samuel S., Luzerne and Second Sts.
Worden, Charles Beatty, 322 S. Sixteenth St.
Wray, William S., 2007 Chestnut St.
Wrigley, Arthur, 1019 Pine St.
Yaeger, Christian G., 2403 East York St.
Yawger, Nathaniel S., 2117 Chestnut St.
Yeager, George C., 1419 E. Susquehanna Ave.
Youell, George Joseph, 730 E. Allegheny Ave.
Young, Anna Gardner, 417 E. Somerset St.
Young, Annie, 424 Parker St., Boston, Mass.
Young, Charles Houston, 4813 Baltimore Ave.
Young, James K., 222 S. Sixteenth St.
Zall, Bernard C., 923 N. Sixth St.
Zentmayer, William, 1819 Spruce St.
Zettlemoyer, Jonas, 5629 Whitby Ave.
Ziegler, Ella Ridgway, 2031 North Allegheny Ave.
Ziegler, S. Lewis, 1625 Walnut St.
Ziegler, Walter M. L., 1418 N. Seventeenth St.
Ziegler, William H., 2031 East Allegheny Ave.
Zimlick, Arthur J., Cor. Greene & Harvey Sts., Gtn.
Zimmerman, Mason W., 1522 Locust St.
Zulick, Howell S., 2115 Erie Ave.
Zulick, J. Donald, 1321 Spruce St.

POTTER COUNTY SOCIETY

(Organized April 5, 1898.)

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V. Pres.....Ross H. Jones, Coudersport.
Franklin P. Farwell, Galeton.
Sec.-Rept...Elwin H. Ashcraft, Coudersport.
Treasurer...Robert B. Knight, Coudersport.
Censors.....James T. Hurd, Galeton.
J. Irving Bentley, Galeton.
F. Gurney Reese, Coudersport.
Committee on Public Policy and Legislation:
Elwin H. Ashcraft, Coudersport.
James T. Hurd, Galeton.

Stated meetings second Tuesday in January, April, July and October, at Court House, Coudersport. Annual meeting in January.

MEMBERS (21)

Ashcraft, Elwin H., Coudersport.
Bentley, J. Irving, Galeton.
Church, Nathan W., Ulysses.
Colcord, Albert, Port Allegany (McKean Co.).
Colcord, Jos. B., Port Allegany (McKean Co.).
Dennison, James A., Harrison Valley.
Hart, Henry D., Genesee.
Horn, Levi A., Austin.
Hurd, James T., Galeton.
Jacobs, David E., Oswayo.
Jones, Ross H., Coudersport.
Knight, Robert B., Coudersport.
Laye, Hal A., Galeton.
Page, John H., Austin.
Reese, F. Gurney, Coudersport.
Shannon, A. C., Titusville (Crawford Co.).
Squires, Walter H., Roulette.
Stearns, John S., Port Allegany (McKean Co.).
Steele, John G., Galeton.
Tassell, William H., Coudersport.
Winlack, Alexander E., Shingle House.

SCHUYLKILL COUNTY SOCIETY

(Organized 1845.)

President...Gouverneur H. Boyer, Pottsville.
V. Pres.....John K. Berk, Frackville.
Joseph L. Warne, Pottsville.
Sec.-Rept...George O. O. Santee, Cressona.
Treasurer...David Taggart, Frackville.
Censors.....Christian Lenker, Schuylkill Haven, 1 yr.
J. Spencer Callen, Shenandoah, 2 yrs.
Arthur B. Fleming, Tamaqua, 3 yrs.
Committee on Public Policy and Legislation:
John C. Gallagher, Shenandoah.
Christian Gruhler, Shenandoah.
John R. Stein, Shenandoah.

Stated meetings in Pottsville (or elsewhere as may be selected) the first Tuesday of each month. Election of officers in January.

MEMBERS (101)

Auchmuty, John E., Tamaqua.
Barr, William H., Fountain Springs.
Bartho, Benjamin F., Mt. Carmel (Northum. Co.).
Beale, John E., Coaldale.
Bergstein, A. M., Pottsville.
Berk, John K., Frackville.
Berkheiser, Arthur John, Shenandoah.
Biddle, Jonathan C., Ashland.
Blazejewski, Stanley W., 46 South Washington St., Wilkes-Barre (Luz. Co.).
Boord, Paul C., Maryd.
Bowers, Walter G., Schuylkill Haven.
Bowman, Henry C., Gilberton.
Boyer, Gouverneur H., Pottsville.
Bredt, Charles E., Mahanoy City.
Bretz, Gilbert F., Pottsville.
Bronson, Albert F., Girardville.
Burns, J. V., Coaldale.
Callen, J. Spencer, Shenandoah.
Carlin, Oscar J., Pottsville.
Carpenter, James S., Jr., Pottsville.
Casey, Thomas D., Ashland.
Constein, Rudolph A., Ashland.
Corson, George R. S., Pottsville.
Dailey, John Joseph, McAdoo.
Dechert, Harry W., Orwigsburg.
Detweiler, Aaron H., Schuylkill Haven.
Dewey, Michael G., Girardville.
Donahue, John J., Frackville.
Doyle, William F., Pottsville.
Fegley, Theodore C., Tremont.
Fenton, Ivor D., Mahanoy City.
Fleming, Arthur B., Tamaqua.
Freudenberger, Katrina, Tamaqua.
Gallagher, John C., Shenandoah.
Gillars, Alexander L., Pottsville.
Gillette, Claude W., Schuylkill Haven.
Gray, Robert B., Port Carbon.
Gruhler, Christian, Shenandoah.
Halberstadt, George H., Pottsville.
Harding, Frederick B., Tamaqua.
Heim, Lyman D., Schuylkill Haven.

Heller, James B., Pottsville.
Hensyl, George S., Mahanoy City.
Hinkle, William H., Tamaqua.
Hoffman, J. Louis, Ashland.
Householder, Merchant C., Pottsville.
Jones, William G., Tamaqua.
Keith, Elwin W., Minersville.
Kennedy, Louis T., Pottsville.
Kingsbury, Mary B., Pottsville.
Knauber, Leo M., Tower City.
Kramer, Joseph G., Pottsville.
Lenker, Christian, Schuylkill Haven.
Lessig, James Alfred, Schuylkill Haven.
McCutcheon, Thomas O., Gordon.
McGurl, Thomas J., Minersville.
McLane, Harriet Evans, 1891 Grand River Ave., Detroit, Mich.
Marshall, D. Samuel, Ashland.
Marshall, John Frank, Ashland.
Matten, William H., McKeansburg.
Maurer, Elmer H., Ashland.
Miller, Charles D., Pottsville.
Monahan, John S., Shenandoah.
Montelius, Ralph W., Mt. Carmel (Northum. Co.).
Moore, George H., Schuylkill Haven.
Moore, John J., Pottsville.
Mullahey, Leo Thomas, Shenandoah.
O'Hara, Patrick H., Pottsville.
Rentschler, Walter R., Ringtown.
Ressler, George W., Ashland.
Riley, John D., Mahanoy City.
Roberts, J. Pierce, Shenandoah.
Robinhold, Lewis C., Auburn.
Rogers, Jerome B., Pottsville.
Roth, James R., Fountain Springs.
Roth, Victor T., Pottsville.
Ryan, John T., St. Clair.
Ryland, Albanus S., Valley View.
Rynkiewicz, Ella I., Shenandoah.
Santee, George O. O., Cressona.
Scanlan, William J., Shenandoah.
Schultz, J. William, Tremont.
Seligman, Abram P., Mahanoy City.
Shifferstine, Edgar E., Tamaqua.
Simonis, Arthur E., Tremont.
Stein, John R., Shenandoah.
Stein, Newton Henry, Middleport.
Stein, William N., Shenandoah.
Stewart, Harry H., Friedensburg.
Straub, Elmer L., Minersville.
Striegel, John G., Pottsville.
Taggart, David, Frackville.
Walter, Frank J., Pinegrove.
Warne, Joseph Lloyd, Pottsville.
Weaver, Robert F., St. Clair.
Weaver, William A., Coaldale.
Weisner, Edwin E., Tamaqua.
Wertman, Samuel E., Mahanoy City.
Williams, T. Lamar, Mt. Carmel (Northum. Co.).
Williams, William T., Mt. Carmel (Northum. Co.).
Winters, William J., Shenandoah.

SNYDER COUNTY SOCIETY

(Organized May 18, 1905.)

President...Charles N. Brosius, Shamokin Dam.
V. Pres.....John O. Wagner, Beaver Springs.
Sec.-Rept...R. W. Johnston, Selins Grove.
Treasurer...Edwin M. Miller, Beavertown.
Censors.....Harry F. Wagenseller, Selins Grove, 1 yr.
Dwight E. Long, Freeburg, 2 yrs.
A. Jerome Herman, Middleburg. 3 yrs.
Committee on Public Policy and Legislation:
Elmer R. Decker, Selins Grove.

Annual meeting in January. Stated meetings at 11 a. m. (unless otherwise ordered), the first Friday of each month, at Middleburg, Selins Grove or Beaver Springs, as ordered by vote of the society.

MEMBERS (16)

Brosius, Charles N., Shamokin Dam.
Deckard, John W., Richfield (Juniata Co.).
Decker, Elmer R., Selins Grove.
Hassinger, G. Edgar, Middleburg.
Herman, A. Jerome, Middleburg.
Herman, Percival, Kratzerville.
Johnston, R. W., Selins Grove.
Long, Dwight E., Freeburg.
Longacre, William W., Mt. Pleasant Mills.
Miller, Edwin M., Beavertown.
Rothrock, Marand, Mt. Pleasant Mills.
Shive, Simon D., McClure, R.D. 1.
Wagenseller, Harry F., Selins Grove.
Wagner, John O., Beaver Springs.
Whiffen, Percy E., McClure.
Williams, Edward C., Port Trevorton.

SOMERSET COUNTY SOCIETY

(Organized October 29, 1889.)

President...Charles J. Hemminger, Rockwood.
V. Pres.....Carl W. Frantz, Confluence.
Sec.-Rept...H. Clay McKinley, Meyersdale.
Treasurer...Walter S. Mountain, Confluence.
Censors.....E. F. Hemminger, Meyersdale.
Henry Wilson, Somerset.
George F. Speicher, Rockwood.
Committee on Public Policy and Legislation:
Charles B. Korns, Somerset, R.D. 6.
Albert M. Lichty, Elk Lick.
Clinton T. Saylor, Rockwood.
Prog. Com..Bruce Lichty, Meyersdale.
Irwin C. Miller, Berlin.
Franklin E. Sass, Boswell.

Stated meetings at place selected on the third Tuesday of January, March, May, September and November. Election of officers in November and offices assumed at January meeting.

MEMBERS (41)

Berkheimer, George C., Windber.
Bittner, Charles R., Hooversville.
Bowman, Jacob T., Somerset.
Dull, J. Earl, Somerset.
Frantz, Carl W., Confluence.
Heffley, Robert, Berlin.
Hemminger, Charles J., Rockwood.
Hemminger, Edward F., Meyersdale.
Hemminger, J. Ross, Somerset.
Hertzler, Henry, Jenners.
Keim, Albert F., Davidsville.
Keim, William W., Jerome.
Kimmel, Henry S., Macdonaldton.
Korns, Charles B., Somerset, R. D. 6.
Large, Charles P., Meyersdale.
Lichty, Albert M., Elk Lick.
Lichty, Bruce, Meyersdale.
Livengood, Charles F., Boswell.
Long, Benjamin H., Jenners.
Louther, Snyder J. H., Somerset.
McIntyre, Milton U., Boswell.
McKinley, H. Clay, 203 Salesby St., Meyersdale.
McMillan, William T., Meyersdale.
Marsden, Henry Irving, Somerset.
Masters, George B., Rockwood.
Meyers, Herbert P., Confluence.
Miller, Irwin C., Berlin.

Mountain, Walter S., Confluence.
Noon, George A., Listie.
Rowe, William T., Meyersdale.
Sass, Franklin E., Boswell.
Saylor, Clinton T., Rockwood.
Shaffer, Charles I., Ralphton.
Shaffer, Fred B., Somerset.
Shaw, William P., Berlin.
Smeltz, G. W., Markleton.
Smith, Bart James, Windber.
Speicher, George F., Rockwood.
Wenzel, John W., Meyersdale.
Wilson, Henry, Somerset.
Zimmerman, Henry A., Hollsopple.

SULLIVAN COUNTY SOCIETY

(Organized Aug. 9, 1907.)

President...Martin E. Herrmann, Dushore.
V. Pres.....Hugh K. Davis, Sonestown.
George C. Swope, Mildred.
Secretary...Arthur J. Bird, Overton.
Treasurer...Justin L. Christian, Lopez.
Reporter....Carl M. Bradford, Forksville.
Censors.....Silas D. Molyneux, Sayre, 3 yrs.
George C. Swope, Mildred, 2 yrs.
Philip G. Biddle, Dushore, 1 yr.
Committee on Public Policy and Legislation:
Silas D. Molyneux, Sayre.
William H. Randall, Laporte.
Exec. Com..Martin E. Herrmann, Dushore.
Arthur J. Bird, Overton.
Theodore Wright, Dushore.

Meetings shall be held quarterly, the January meeting to be held in Dushore, the other meetings at time and place to be fixed by vote of the society or by program committee.

MEMBERS (10)

Biddle, Philip G., Dushore.
Bird, Arthur J., Overton (Bradford Co.).
Bradford, Carl M., Forksville.
Christian, Justin L., Lopez.
Davis, Hugh K., Sonestown.
Herrmann, Martin E., Dushore.
Molyneux, Silas D., Sayre (Bradford Co.).
Randall, William H., Laporte.
Swope, George C., Mildred.
Wright, Theodore, Dushore.

SUSQUEHANNA COUNTY SOCIETY

(Organized Nov. 19, 1838.)

President...T. Oliver Williams, Brooklyn.
V. Pres.....H. D. Washburn, Susquehanna.
Sec.-Treas..Edward R. Gardner, Montrose.
Reporter....Dever J. Peck, Susquehanna.
Censors.....Homer B. Lathrop, Springville, 1 yr.
C. W. Caterson, Franklin Forks, 2 yrs.
Fred S. Birchard, Montrose, 3 yrs.
Committee on Public Policy and Legislation:
Dever J. Peck, Susquehanna.
Homer B. Lathrop, Springville.
Abram E. Snyder, New Milford.
Exec. Com..T. Oliver Williams, Brooklyn.
Edward R. Gardner, Montrose.
Abram E. Snyder, New Milford.

Annual meeting in Montrose the second Tuesday of January. Other meetings, morning and afternoon sessions, second Tuesday of May, August and October at places designated at previous meetings.

MEMBERS (22)

Birchard, Fred S., Montrose.
Blair, A. Stryker, Hallstead.
Caterson, Clarington W., Franklin Forks.
Collier, Martin H., Susquehanna.
Condon, William J., Susquehanna.
Denman, Arthur J., Susquehanna.
Fitch, Alpheus B., Factoryville (Wyoming Co.).
Fry, Harvey M., Rush.
Gardner, Edward R., Montrose.
Hooven, H. Hewitt, Harford.
Johnston, Charles A., Harford.
Lathrop, Homer B., Springville.
Miller, Morgan L., Susquehanna.
Park, William E., New Milford.
Peck, Dever J., Susquehanna.
Preston, Warren W., Montrose.
Snyder, Abram E., New Milford.
Taylor, Arthur J., Hopbottom.
Vanness, Clarence N., Hallstead.
Washburn, H. D., Susquehanna.
Williams, T. Oliver, Brooklyn.
Wilson, John G., Montrose.

TIOGA COUNTY SOCIETY

(Organized 1861. Reorganized January 24, 1896.)

President...Wilmot G. Humphrey, Elkland.
V. Pres.....William C. Wilson, Morris Run.
Sec.-Treas..Solomon P. Hakes, Tioga.
Rec. Sec....Edward M. Haley, Blossburg.
Reporter....Harry C. Harkness, Mansfield.
Exec. Com...Solomon P. Hakes, Tioga.
Wilmot G. Humphrey, Elkland.
William A. DeWitt, Blossburg.
Censors.....John R. Davies, Blossburg, 1 year.
Nathan W. Mastin, Wellsboro, 2 years.
Charles R. Smith, Tioga, 3 years.

Stated meetings the first Friday in each month, at places selected. Election of officers in January.

MEMBERS (34)

Caldwell, Henry E., 3009 Moosewood Ave., Cincinnati, Ohio.
Clark, Edwin E., Knoxville.
Darling, Arland L., Lawrenceville.
Davies, John R., Blossburg.
DeWitt, William A., Blossburg Hosp., Blossburg.
Ditchburn, David T., Arnot.
Doane, John H., Mansfield.
Frisbie, Hiram Z., Elkland.
Gaskill, Samuel A., Covington.
Gentry, Clarence C., Knoxville.
Gentry, John M., Wellsboro.
Genung, Benjamin W., Ulysses.
Hakes, Solomon P., Tioga.
Haley, Edward M., Blossburg.
Harkness, Harry C., Mansfield.
Howland, Harry W., Gaines.
Humphrey Wilmot G., Elkland.
Kennedy, F. H., Middlebury Center.
Long, M. Richard, Leetonia.
Longwell, John P., Wellsboro.
Mastin, Nathan W., Wellsboro.
Meaker, Hughes G., Tioga.
Nye, Orrin S., Rutland.
Phillips, Burt R., Elkland.
Secor, John C., Westfield.
Shaw, Farnham H., Wellsboro.
Sheldon, Charles W., Tioga.
Smith, Charles R., Tioga.
Smith, L. Chapman, Lawrenceville.
Vedder, Wentworth D., Wellsboro.

Webb, Clarence W., Wellsboro.
Wheeler, Edith Flower, Gleason Sanitarium, Elmira, N. Y.
White, William F., Wellsboro.
Wilson, William Caldwell, Morris Run.

UNION COUNTY SOCIETY

(Organized July 27, 1904.)

President...Oliver W. H. Glover, Laurelton.
V. Pres.....Ralph Steans, Lewisburg.
Sec.-Treas..Amos V. Persing, Allenwood.
Reporter....William E. Metzgar, Alvira.
Censors.....David M. Sampsell, Winfield, 1 yr.
Charles A. Gundy, Lewisburg, 2 yrs.
Committee on Public Policy and Legislation:
William Leiser, Jr., Lewisburg.
Amos V. Persing, Allenwood.

Stated meetings in either Bucknell Hall or Bucknell Laboratory, Lewisburg, the third Thursday of April, July, October and December. Election of officers in July.

MEMBERS (16)

Bikle, Paul H., Mifflinburg.
Dimm, Charles H., Mifflinburg.
Focht, Martin Luther, Lewisburg.
Gerhart, Weber L., Lewisburg.
Glover, Oliver W. H., Laurelton.
Gundy, Charles A., Lewisburg.
Hill, Albert Harrison, Mifflinburg.
Leiser, William, Jr., Lewisburg.
Matzke, Edith H., 417 E. Buffalo St., Ithaca, N. Y.
Metzgar, William E., Alvira.
Persing, Amos V., Allenwood.
Sampsell, David M., Winfield.
Steans, Ralph, Lewisburg.
Thornton, Harry R., Lewisburg.
Thornton, Thomas C., Lewisburg.
Wolf, Mary M., Lewisburg.

VENANGO COUNTY SOCIETY

(Organized May 8, 1867.)

President...Elmer L. Dickey, Oil City.
V. Pres.....Lewis E. McBride, Franklin.
Sec.-Rept...J. Irwin Zerbe, Franklin.
Treasurer...John F. Davis, Oil City.
Censors.....John B. Glenn, Franklin, 1 year.
W. A. Nicholson, Franklin, 2 years.
James B. Siggins, Oil City, 3 years.
Committee on Public Policy and Legislation:
John F. Davis, Oil City.
William G. Gilmore, Emlenton.

Stated meetings on the third Tuesday of January, March, May, July, September and November at 1 p. m., in Franklin or Oil City. Two meetings each year are "outings" and are held at Monarch Park and the State Institution for Feeble Minded. Election of officers in January.

MEMBERS (52)

Black, Burton A., Polk.
Bolton, Earle W., Oil City.
Bovard, Forrest J., Tionesta (Forest Co.).
Bridenbaugh, Charles S., Emlenton.
Brown, Frederick W., Franklin.
Cooper, Clifford, Cooperstown.
Crawford, John K., Cooperstown.
Cunningham, Paul R., Clintonville.
Davis, John F., Oil City.
Detar, Carm Y., I. O. O. F. Bldg., Oil City.
Dickey, Elmer L., Oil City.
Dille, George W., Cooperstown.
Dunn, Rose M., Franklin.
Dwyer, James E., Polk.
Foster, Samuel G., Franklin.
Gaynor, Henry B., Polk.
Gilmore, William G., Emlenton.
Glenn, John B., Franklin.
Hammond, Henry P., Franklin.
Henry, E. Glenn, Oil City.
Irwin, Thomas A., Franklin.
Jackson, Frank B., Oil City.
Jobson, George B., Franklin.
McBride, Lewis E., Franklin.
McDowell, Harry F., Franklin.
McDowell, Samuel W., Pittsville.
McKee, M. Ada, Oil City.
McLain, Paul, Oil City.
Magee, F. Earle, Oil City.
Moore, Edwin W., 2825 29th St., San Diego, Calif.
Mount, Winnie K., 112 W. State St., Harrisburg (Dauphin Co.).
Murdoch, J. Moorehead, Polk.
Nicholson, William Addison, Franklin.
Perrine, Jonathan B., Wesley.
Roth, William R., Med. Ex., P. R. R., Erie (Erie Co.).
Serrill, W. W., Kellettville (Forest Co.).
Sharp, James R., Oil City.
Siggins, James B., Oil City.
Slater, Sidney A., Oil City.
Snyder, Charles P., 1418 Catharine St., Philadelphia.
Spencer, Elwood P., Cooperstown.
Stone, Harry S., Franklin.
Strayer, Jacob P., Oil City.
Summerville, F. M., Oil City.
Thompson, Ardus C., Franklin.
Thompson, Edgar V., Franklin.
Vogan, David Earl, Marienville (Forest Co.).
Waid, John M., Titusville (Crawford Co.).
Wallace, John M., Franklin.
Wilkins, John C., Oil City.
Wilson, Calvin M., Franklin.
Zerbe, J. Irwin, Franklin.

WARREN COUNTY SOCIETY

(Organized 1871. Reorganized Sept. 19, 1881.)

President...Paul B. Stewart, Warren.
V. Pres.....Rebert B. Mervine, Sheffield.
Adelaide Ellsworth, Warren.
Sec.-Treas..Floyd G. Schuler, Warren.
Reporter....Ira A. Darling, Warren.
Censors.....James R. Durham, Warren.
Monroe T. Smith, Warren.
Christian J. Frantz, Warren.
Prog. Com..Paul B. Stewart, Warren.
Elizabeth S. Beaty, Warren.
John C. Russell, Warren.

Stated meetings the first Tuesday after second Monday of each month. Election of officers in January.

MEMBERS (41)

Africa, Edwin S., Warren.
Baker, Willis M., Warren.
Ball, Michael V., N. Y. Med. Coll. and Hosp. for Women, 19 W. 101st St., New York City.
Beaty, Elizabeth S., Warren.
Bennett, George Everett, Corry (Erie Co.).
Bradshaw, George M. B., Sugar Grove.
Brown, Otis S., Warren.
Chapman, LeRoy E., Warren.
Clancy, William Patrick, Warren.

Condit, George S., Warren.
Cowden, Ernest J., North Warren.
Darling, Ira A., State Hosp. for Insane, North Warren.
Durham, James R., Warren.
Ellsworth, Adelaide, State Hospital, Warren.
Finlayson, Alan, Warren.
Frantz, Christian J., Warren.
Haines, Franklin G., Warren.
Hamilton, John W., Warren.
Hyer, Irving G., Clarendon.
Kelley, Ernest J., Chandlers Valley.
Kibler, Charles B., Corry (Erie Co.).
Knapp, Joseph J., Youngsville.
Knapp, Ralph, Youngsville.
MacDonald, Alden B., Warren.
McKee, Edwin D., Warren.
Mervine, Robert B., Sheffield.
Mitchell, Harry W., Warren.
Mitchell, Mary P., Warren.
Noeson, Frank T., Bear Lake.
Paige, Laverne D., Spring Creek.
Pryor, George T., Sheffield.
Robertson, William M., Warren.
Russell, Hiram B., Sheffield.
Russell, John C., Warren.
Schmehl, Charles W., Warren.
Schuler, Floyd G., Warren.
Smith, Monroe T., Warren.
Stewart, Paul B., Warren.
Stewart, Richard B., Warren.
VerMilyea, Charles H., Russell.
Weston, Paul, State Hospital, Warren.

WASHINGTON COUNTY SOCIETY

(Organized May 19, 1855.)

President...John B. McMurray, Washington.
Sec.-Treas..Albert E. Thompson, Washington.
Reporter...John B. McMurray, Washington.
Librarian...Richard A. Stewart, Washington.
Censors.....Joseph W. Hunter, Charleroi.
William R. Thompson, Washington.
George B. Woods, Washington.

Committee on Public Policy and Legislation:
Charles B. Wood, Monongahela.
W. D. Martin, Dunns Station, R. D. 2.
Samuel A. Lacock, Canonsburg.

Stated meetings in rooms of the society, Reed Building, Washington, second Tuesday of every month, except July and August, at 2 p. m.

MEMBERS (110)

Alexander, William Horner, Canonsburg.
Bell, David Major, 145 Center St., Canonsburg.
Beveridge, David, Washington.
Booth, Alexander Nelson, Bentleysville.
Braden, Leroy W., Ten Mile.
Burns, William James, 111 W. Chestnut St., Washington.
Carey, John Herschel, Prosperity.
Cobb, Freeman Floyd, Marianna.
Collier, Ewing L., Roscoe.
Conger, George R., Taylorstown.
Connor, Robert Evert, Hickory.
Cracraft, Charles Clinton, Claysville.
Davis, Alden O., Charleroi.
Day, Minor H., Donora.
Dearth, Olie Post, Washington.
Dickson, William R., McDonald.
Dodd, Cephas T., Washington, R. D. 6.
Dodd, William Lincoln, Amity.
Donahoo, J. Frank, Washington.
Dunkle, Gaily Barr, Washington.
Eagleson, Robert M., Fredericktown.
Edwards, David Henry, Washington.
Emery, Boyd Alfred, Eighty-Four, R. D. 1.
Enos, J. Clive, Charleroi.
Farquhar, Ralph Claude, Monongahela.
Frantz, George B., Coal Center.
Geddis, Charles Patterson, Washington.
Gormley, James A., Meadowlands.
Graves, Charles T., Monongahela.
Haines, Dempsey D., Allenport.
Hanlon, Torrance J., Donora.
Harsha, Charles Lloyd, Canonsburg.
Hart, William Ernest, Washington.
Hazlett, Edgar Marion, Washington.
Hazlett, Esten L., Canonsburg.
Hindman, Audley O., Cross Creek.
Honesty, Leonard C., Washington.
Hoon, Leroy W., Monongahela.
Hunter, Joseph William Charleroi.
Johnson, Elbin J., Claysville.
Johnson, J. Huston, Glenmoore (Chester Co.).
Kelly, George M., Washington.
Kelso, John Calvin, Canonsburg.
Kirby, Harry J., Cokeburg.
Kirchner, Louis F., Washington.
Knox, Frank L., Claysville.
Knox, J. Campsey, 420 Trust Bldg., Washington.
Lacock, Horace Mortimer, West Finley.
Lacock, Samuel Allen, Canonsburg.
LaRoss, William Asher, McDonald.
Lewis, Orville Garret, 841 Jefferson Ave., Washington.
Lewis, William H., Donora.
Linn, Charles Francis, Monongahela.
Lutz, Loyal G., Roscoe.
Lynch, Harry Pierce, 140 Main St., Monongahela.
McCarrell, David Leander, Hickory.
McCullough, Wm. John L., 26 E. Maiden St., Washington.
McKay, Edwin M., Charleroi.
McKee, George L., Burgettstown.
McKennan, James Wilson, Washington.
McMurray, John Boyd, Washington.
McNinch, James R., West Alexander.
Manning, Milton F., Beallsville.
Martin, William Douglass, Dunns Station, R. D. 2.
Maxwell, John Ralph, Washington.
Murray, Uriah Burton, Washington.
Parry, Roger Sammons, 75 Main St., Washington.
Patterson, Frank Iams, 188 Duncan Ave., Washington.
Patterson, Guy Egbert, Washington.
Patterson, John A., Washington.
Paxton, Cornelius P., California.
Prowett, Homer Persell, Washington.
Ramsey, Geo. W., Lone Pine (Washington, R. D. 4).
Repman, Harry Joseph, Charleroi.
Reynolds, John M. C., Washington.
Ruben, Samuel A., Washington.
Runion, A. LeGrand, Canonsburg.
Sargent, Larry Dodd, Washington.
Scott, Jesse Yeager, Washington.
Shuster, Alfred R., Finleyville.
Sickman, A. S., Lock No. 4.
Snodgrass, Henry Lane, Buffalo.
Spahr, Robert Argyle, West Brownsville.
Sprowls, Jesse Addison, Donora.
Sprowls, John Nelson, Claysville.
Sprowls, William Wilson, Houston.
Stahlman, Frederick C., Charleroi.
Stewart, Richard A., 26 E. Maiden St., Washington.
Stewart, Robert S., Washington.
Stewart, Robert Vance, Monongahela.
Teagarden, William David, Washington.
Thompson, Albert Ely, Washington.
Thompson, William Reed, Washington.
Throckmorton, Charles Benton, Canonsburg.
Timmons, Joseph M., West Alexander.

Tucker, Gabriel F., Canonsburg.
Underwood, Frank H., Monongahela.
Veatch, Nicholas Selby, California.
Vieslet, Victor P., Charleroi.
Wall, Porter M., Monongahela.
Weirich, Collin Reed, Washington.
Weygandt, William Wilson, Thomas.
Whyte, Harry A., Washington.
Wilson, James E., Canonsburg.
Wilson, James H., Coal Center.
Wilson, Thomas Dent Mutter, Washington.
Wolfe, Russell Wilson, Taylorstown.
Wood, Charles Bennett, Monongahela.
Woods, George Brown, 9½ E. Bean St., Washington.

WAYNE COUNTY SOCIETY

(Organized May 25, 1905.)

President...Robert W. Brady, Honesdale.
V. Pres.....Harry B. Ely, Honesdale.
Edward W. Burns, Honesdale.
Sec.-Treas..William T. McConvill, Honesdale.
Censors.....Edward W. Burns, Honesdale.
Harry B. Ely, Honesdale.
Fred W. Powell, Honesdale.

Committee on Public Policy and Legislation:
William T. McConvill, Honesdale.

Stated meetings held the third Thursday of May, July, October and December at location decided upon at previous meeting. Annual meeting in May.

MEMBERS (33)

Appley, William W., Cochecton, Sullivan Co., N. Y.
Bang, Edward Otto, South Canaan.
Bang, Sarah Allen, South Canaan.
Bennett, John E., Starrucca.
Berlin, Allan A., Newfoundland.
Brady, Robert W., Honesdale.
Burns, Edward Ward, Honesdale.
Cook, Alexander Marshall, South Canaan.
Corson, Charles H., Rileyville.
Ely, Harry B., Honesdale.
Emerson, Henry E., Milford (Pike Co.).
Frisbie, Frank C., Equinunk.
Gavitte, Edward B., White Mills.
Griffin, Patrick F., Honesdale.
Kenworthy, William B., Milford (Pike Co.).
Krauss, Walter R., Farview, Waymart.
Lobb, Frederick A., Hawley.
McCafferty, George W., Hosp. for Insane, Somerset (Somerset Co.).
McCafferty, R. Watson, 412 Sandusky St., Pittsburgh (Alle. Co.).
McClellan, Henry Jos., Callicoon, Sullivan Co., N. Y.
McConvill, William T., Honesdale.
Miller, Edwin S., Pleasant Mount.
Nielsen, Louis B., Honesdale.
Noble, Homer C., Waymart.
Parsells, Charles Wilson, Narrowsburg, Sullivan Co., N. Y.
Peterson, Pierson B., Honesdale.
Powell, Fred W., Honesdale.
Rodman, George T., Hawley.
Simons, Arthur J., Newfoundland.
Smith, Frank I., Shohola (Pike Co.).
Stevens, William A., 2101 N. Washington Ave., Scranton (Lackawanna Co.).
Voigt, Arno C., Hawley.
White, Harry Cummings, Ariel.

WESTMORELAND COUNTY SOCIETY

(Organized November 15, 1859.)

President...Harold N. Prothero, Jeannette.
V. Pres.....Harry W. Tittle, New Florence.
Charles R. Reiners, Greensburg.
Sec.-Treas..Myers W. Horner, Mt. Pleasant.
Reporter....Ellsmer L. Piper, Export.
Censors.....Thomas St. Clair, Latrobe, 1919.
Charles D. Ambrose, Ligonier, 1918.
Claude W. McKee, Greensburg, 1917.
Exec. Com...Harold N. Prothero, Jeannette.
Myers W. Horner, Mt. Pleasant.
R. E. Lee McCormick, Irwin.

There shall be twelve meetings of the society, one each month. All will be held in Greensburg in City Hall, at 2 p. m., on the first Tuesday.

MEMBERS (143)

Abatticchio, Nicholas, Latrobe.
Alexander, Ray M., Bolivar.
Ambrose, Charles D., Ligonier.
Ambrose, Jacob T., Ligonier.
Anderson, John S., Greensburg.
Ankney, Edward G., Pleasant Unity.
Aspey, Lewis S., Smithton.
Bailey, Jean C., Greensburg.
Bailey, Louis J. C., Greensburg.
Baldwin, Clifford C., Forbes Road.
Barkley, John W., Ligonier.
Barron, William M., Latrobe.
Beacom, Albert A., Mammoth.
Blackburn, Ida E., Greensburg.
Boale, John A., Vandergrift Heights.
Boehm, George, Arona.
Bortz, Walter M., Greensburg.
Brown, Walter H., Youngwood.
Burkholder, John Lewis, 401 E. Washington St., Mt. Pleasant.
Byers, W. Craig, Webster.
Caldwell, John D., Irwin.
Carnahan, Wm. J., 202 Washington St., Vandergrift.
Caven, Alva H., Youngwood.
Clifford, Edward M., Greensburg.
Cochran, Albert M., Salina.
Cole, Thomas P., Greensburg.
Cope, John C., Greensburg.
Cramer, Morgan J., Monessen.
Crawford, John S., Greensburg.
Croushore, Charles C., Greensburg.
Day, Howard W., Monessen.
Dickson, George M., Adamsburg.
Dunlap, Effie Belle, Ligonier.
Ernest, Simon Peter, Delmont.
Easter, Daniel M., Youngwood.
Ewing, Alfred E., Youngstown.
Ewing, James R., Delmont.
Ewing, John H., Delmont.
Fairing, John Walker, Greensburg.
Farquhar, David Clifford, Monessen.
Fennell, William L., Salina.
Ferguson, Rutherford Hayes, Herminie.
Fetter, William H., Scottdale.
Fichthorn, Lewis Leitzell, Avonmore.
Fleming, James C., 649 Herron Ave., Pittsburgh (Alle. Co.).
Gemmill, W. P., Monessen.
Gilbert, Levi T., Scottdale.
Gray, Samuel Brown, Scottdale.
Greaves, John D., New Alexandria.
Griffith, Martin E., Monessen.
Haughwout, Bert, Derry.
Haymaker, William J., Export.
Hess, Oliver I., Scottdale.
Highberger, Harry L., Madison.

Horner, Myers Worman, Mt. Pleasant.
Hunter, William D. Monessen.
Hutton, David S., Smithton.
Inberg, Hannes, Monessen.
Israel, Isaac Joseph, Monessen.
Jack, James Renwick, New Alexandria.
Johnson, J. Barton, Ligonier.
Jordan, David C., Derry.
Katherman, Frank C., Whitney.
Kepple, Adam S., Hannastown.
Kerr, Norman L., Scottdale.
Kimmel, Harry F., Derry.
Kline, William J. K., Greensburg.
Klingensmith, Thomas A., Jeannette.
Krebs, A. Bryan, Bolivar.
Kreger, Oliver J., Monessen.
Leatherman, Daniel J., 215 Pennsylvania Ave., Greensburg.
Leatherman, Kate W., Greensburg.
Lemmon, James Quinn, Latrobe.
Lohr, Floyd D., Derry.
McClellan, Robert P., Jr., Irwin.
McCormick, R. E. Lee, Irwin.
McDowell, William J., Scottdale.
McKee, Claude W., Greensburg.
McMurray, H. Albert, Youngwood.
McNish, George T., Alverton.
Marsh, Florence L., Mt. Pleasant.
Marsh, William A., Mt. Pleasant.
Miller, George W., Greensburg.
Miller, Wesley W., Jeannette.
Mitchell, Lou Murray, Pricedale.
Montgomery, Mary L., Mt. Pleasant.
Moran, Thomas W., Latrobe.
Murdock, Dennis Ray, Greensburg.
Nealon, Stephen W., Latrobe.
Ober, Bert Frank, Latrobe.
Ober, Irwin J., Greensburg.
Offutt, Lemuel, Greensburg.
Owaroff, Abraham, Donora (Wash. Co.).
Painter, Theodore P., United.
Patton, James M., 147 Jefferson Ave., Vandergrift.
Pierce, Carl F., Greensburg.
Pile, Philip S., Latrobe.
Piper, Ellsmer Landis, Export.
Pogue, Frank Milton, Trafford.
Poole, Charles H., Ruffsdale.
Portzer, Iden M., Greensburg.
Potts, William Joseph, Greensburg.
Prothero, Harold Ney, Jeannette.
Reed, Joseph M., 106 West 83d St., New York, N. Y.
Reese, Leroy J., Bolivar.
Reidt, Urban H., Jeannette.
Reiners, Charles R., Greensburg.
Ringer, Joseph H., Jeannette.
Robinson, John Q., Jr., West Newton.
Rugh, Carroll Bancroft, New Alexandria.
St. Clair, Thomas, Latrobe.
Sankey, Lee Monte, Jeannette.
Seaton, Charles F., Crab Tree.
Shelar, Joseph W., Mt. Pleasant.
Shirey, Charles A., Manor.
Silliman, James W., Bradenville.
Silsley, Nathaniel Eldridge, Scottdale.
Singer, John J., Greensburg.
Skirpan, John M., Monessen.
Sloan, Charles M., Madison.
Sloterbeck, Edgar B., Monessen.
Smith, L. B. Raymond, Jeannette.
Smithgall, Melvin H., Export.
Snyder, Charles E., Greensburg.
Snyder, Oscar B., Greensburg.
Speer, Ross H., Vandergrift.
Stahlman, J. C., Vandergrift.
Stauffer, Harry J., Jeannette.
Stockberger, Harry J., Claridge.
Strickler, Albert W., Scottdale.
Strickler, James P., Scottdale.
Taylor, Charles E., Irwin.
Tittle, Harry W., New Flerence.
Waide, Arthur A., Scottdale.
Walker, D. Allison, Southwest.
Walker, Wilder J., 736 Wallace Ave., Wilkinsburg (Alle. Co.).
Watkins, Benjamin M., New Derry.
Watson, Joseph H., Jeannette.
Wilson, Arthur R., Monessen.
Wilson, Louis F., 215½ S. Main St., Greensburg.
Wilson, Robert L., Jeannette.
Wright, Samuel S., Pleasant Unity.
Wynn, Charles A., Greensburg.

WYOMING COUNTY SOCIETY

(Organized Aug. 11, 1903.)

President...Kennard J. French, Factoryville.
V. Pres.....T. Grey Merritt, Mehoopany.
Sec., Treas.
and Rept...Herbert L. McKown, Tunkhannock.
Censors.....George M. Kinner, North Mehoopany.
Anderson D. Tewksberry, Tunkhannock.
Committee on Public Policy and Legislation:
Van C. Decker, Nicholson.
Frank J. Bardwell, Tunkhannock.

Annual meeting in Tunkhannock on the second Wednesday in January. Other meetings, not less than two, to be held as determined by vote of the society.

MEMBERS (16)

Bardwell, Frank J., Tunkhannock.
Beaumont, William B., Laceyville.
Beilstein, Albert, Meshoppen.
Bidleman, Bert E., Tunkhannock.
Boston, Clarence L., Center Moreland.
Capwell, H. M., Meshoppen.
Decker, Van C., Nicholson.
French, Kennard J., Factoryville.
Harrison, George M., Meshoppen.
Kinner, George M., North Mehoopany.
Lazarus, William W., Tunkhannock.
McKown, Herbert L., Tunkhannock.
Merritt, T. Grey, Mehoopany.
Niles, Ralph M., Nicholson.
Rauch, George H., Noxen.
Tewksberry, Anderson D., Tunkhannock.

YORK COUNTY SOCIETY

(Organized May 11, 1873. Incorporated April 15, 1901.)

(York is the postoffice when street address only is given.)

President...Charles W. Eisenhower, 147 S. George St.
V. Pres.....R. Warren Ramsay, Delta.
Francis R. Wise, 3 E. Market St.
Sec.-Rept...Charles H. May, 1207 N. George St.
Treasurer...Harry W. Zech, 1100 W. Market St.
Librarian....Israel H. Betz, Pine and King Sts.
Censors.....Lawton M. Hartman, 148 S. George St., 1 yr.
Joseph C. Atkins, Red Lion, 2 yrs.
Edmund W. Meisenhelder, Sr., 342 W. Market St., 3 yrs.
Trustees....Roland Jessop, 500 W. Market St.
Samuel K. Pfaltzgraff, 440 W. Market St.
John A. Melsheimer, Hanover.
Exec. Com..Charles W. Eisenhower, 147 S. George St.
Charles H. May, 1207 N. George St.
Alfred A. Long, 34 S. Beaver St.

Committee on Public Policy and Legislation:
Isaac C. Gable, 46 S. Beaver St.
Louis S. Weaver, 3 E. Market St.
Horace M. Alleman, Hanover.

Stated meetings in York, in Colonial Hotel parlor, first Thursday of each month, at 1 p. m. Election of officers in January. Library, third floor of Court House.

MEMBERS (121)

Alleman, Horace M., Hanover.
Atkins, Joseph C., Red Lion.
Bacon, William F., 50 S. George St.
Bahn, George W., Spring Grove.
Baird, Homer Dale, 452 S. George St.
Barshinger, Martin L., 308 E. Market St.
Bennett, John H., 38 N. Beaver St.
Betz, Israel H., Pine and King Sts.
Bittinger, Joseph H., Hanover.
Blanck, John K., Wrightsville.
Bortner, Clayton E., Hanover.
Bowers, Stewart C., New Freedom.
Bowles, George W., 112 W. King St.
Brodbeck, John R., Codorus.
Brose, George W., 415 W. Market St.
Butz, Raymond E., 103 E. Market St.
Comroe, Julius H., 259 S. George St.
Danner, William D., Glenville.
Delle, Oscar A., York New Salem.
Dice, Laura J., 151 S. Queen St.
Dunnick, J. Nelson, Stewartstown.
Dunnick, Milton Carl, Shrewsbury.
Eisenhower, Charles W., 147 S. George St.
Ellis, Robert L., 261 S. George St.
Ensminger, Samuel H., 409 W. Market St.
Fackler, Lewis H., 451 W. Market St.
Farkas, Herman H., 147 S. George St.
Fleagle, Georgianna R., Hanover.
Fleagle, Maurice M., Hanover.
Free, Evans M., Stewartstown.
Frey, Clarence W., Dallastown.
Gable, Isaac C., 46 S. Beaver St.
Galbreath, J. Thomas, Delta.
Gemmill, W. F., 404 E. Market St.
Gerry, Carl H., Shrewsbury.
Gilbert, John, 373 W. Market St.
Gittens, William W., 307 E. King St.
Gress, Henry V., Manchester.
Gross, Jacob M., 706 W. Market St.
Grove, Austin M., Lehmayer Bldg.
Haines, Charles LeRoy, c/o Naval Academy, Annapolis, Md.
Hamme, Curtis J., Dover.
Harbold, John T., Dallastown.
Harding, Louise, 113 N. Newberry St.
Hartman, Lawton M., 148 S. George St.
Hetrick, Homer C., Lewisberry.
Hildebrand, Charles G., Loganville.
Hildebrand, Robert A., Glen Rock.
Hoke, Martin, Spring Grove.
Holtzapple, George E., George and Princess Sts.
Hoover, Benjamin A., Wrightsville.
Horning, Frank, Hellam.
Howard, James H., 137 S. Beaver St.
Hyson, J. Miller, Red Lion.
Jamison, James L., Wrightsville.
Jessop, Roland, 500 W. Market St.
Jones, Harry H., 743 E. Market St.
Kain, John B., 414 E. Market St.
Keagy, Charles A., Hanover.
King, Harry B., 257 E. Market St.
Klinedinst, J. Ferdinand, 220 S. George St.
Krout, G. Elmer, Jacobus.
Lau, Robert E., 1354 W. Market St.
Lawson, Thomas A., Dallastown.
Lecrone, Harris R., 305 W. Market St.
Long, Alfred A., 34 S. Beaver St.
Lutz, J. Fletcher, Glen Rock.
McConkey, Frank Vance, 237 S. Pine St.
McCurdy, William H., Delta.
McDowell, S. Ira, George and King Sts.
May, Charles H., 1207 N. George St.
May, James C., Manchester.
Meisenhelder, Edmund W., 342 W. Market St.
Meisenhelder, Edmund W., Jr., Lincoln & Hartley Sts.
Meisenhelder, John E., Hanover.
Meisenhelder, Robert N., Hanover.
Melsheimer, John A., Hanover.
Miller, Joseph S., 3 East Market St.
Murphy, Jerry C., York Haven.
Noll, Pius A., Glen Rock.
Overmiller, N. Allen, East Prospect.
Pfaltzgraff, Samuel K., 440 W. Market St.
Porter, John W., New Park.
Posey, Benjamin F., Rupp Building.
Posey, David C., Chanceford.
Ramsay, R. Warren, Delta.
Rasin, Robert C., York.
Rea, Charles, 107 E. Market St.
Read, H. Malcolm, 535 W. Market St.
Roberts, Sylvan J., Goldsboro, Etters P. O.
Seitz, Clyde LeGrande, Glen Rock.
Shatto, Arthur B., 220 S. George St.
Shirey, Bernard W., 136 E. Market St.
Sieling, Jacob H., New Freedom.
Small, J. Frank, 161 E. Market St.
Smith, Charles H., 507 W. Philadelphia St.
Smith, Gibson, Hartman Bldg.
Smithton, William H., New Park.
Snyder, Francis J., 342 S. George St.
Spaeder, Philip J., 131 S. Beaver St.
Spahr, Charles E., 14 W. Market St.
Spangler, Benjamin F., 126 N. Duke St.
Spotz, G. Emanuel, 11 E. Market St.
Stambaugh, Elmer S., Thomasville.
Sterner, Lewis H., Porters Sideling.
Stick, Edward W., Hanover.
Stick, Wesley C., Hanover.
Strack, David, 1557 W. Market St.
Uffelman, Harry W., Windsor.
Venus, Charles H., 817 E. Market St.
Wallace, Nathan C., Dover.
Weakley, William S., 107 N. George St.
Weaver, Louis S., 3 E. Market St.
Wentz, Alexander C., Hanover.
Wentz, Parker N., 705 W. Princess St.
Wertz, Theodore H., Hanover.
Williams, Louis V., Mt. Wolf.
Wise, Francis Roman, 3 E. Market St.
Yagle, George N., Red Lion.
Yagle, James L., New Freedom.
Zech, Harry W., 1100 W. Market St.

LIST OF PRESIDENTS OF THE STATE SOCIETY, 1848-1917

*1848.	Samuel Humes	Lancaster Co.
*1849.	Samuel Jackson	Philadelphia Co.
*1850.	Wilmer Worthington	Chester Co.
*1851.	Charles Innes	Northampton Co.
*1852.	Hiram Corson	Montgomery Co.
*1853.	John P. Heister	Berks Co.
*1854.	Jacob M. Gimmill	Huntingdon Co.
*1855.	James S. Carpenter	Schuylkill Co.
*1856.	Rene La Roche	Philadelphia Co.
*1857.	John L. Atlee	Lancaster Co.
*1858.	Smith Cunningham	Beaver Co.
*1859.	D. Francis Condie	Philadelphia Co.
*1860-61.	Edward Wallace	Berks Co.
*1862.	George F. Horton	Bradford Co.
*1863.	Wilson Jewell	Philadelphia Co.
*1864.	J. D. Ross	Blair Co.
*1865.	William Anderson	Indiana Co.

*1866.	James King	Allegheny Co.
*1867.	Traill Green	Northampton Co.
*1868.	John Curwen	Dauphin Co.
*1869.	William M. Wallace	Erie Co.
*1870.	Samuel D. Gross	Philadelphia Co.
*1871.	J. S. Crawford	Lycoming Co.
*1872.	A. M. Pollock	Allegheny Co.
*1873.	S. B. Kiefer	Cumberland Co.
*1874.	Washington L. Atlee	Philadelphia Co.
*1875.	Crawford Irwin	Blair Co.
*1876.	Robert B. Mowry	Allegheny Co.
*1877.	D. Hayes Agnew	Philadelphia Co.
*1878.	J. L. Stewart	Erie Co.
*1879.	Andrew Nebinger	Philadelphia Co.
*1880.	John T. Carpenter	Schuylkill Co.
*1881.	Jacob L. Ziegler	Lancaster Co.
1882.	William Varian	Crawford Co.
*1883.	Henry H. Smith	Philadelphia Co.
*1884.	Ezra P. Allen	Bradford Co.
*1885.	E. A. Wood	Allegheny Co.
*1886.	Rees Davis	Luzerne Co.
*1887.	Richard J. Levis	Philadelphia Co.
*1888-89.	J. B. Murdoch	Allegheny Co.
*1890.	Alexander Craig	Lancaster Co.
1891.	Samuel L. Kurtz	Berks Co.
1892.	Henry L. Orth	Dauphin Co.
1893.	H. G. McCormick	Lycoming Co.
1894.	John B. Roberts	Philadelphia Co.
1895.	William S. Foster	Allegheny Co.
1896.	E. E. Montgomery	Philadelphia Co.
*1897.	W. Murray Weidman	Berks Co.
*1898.	Webster B. Lowman	Cambria Co.
*1899.	George W. Guthrie	Luzerne Co.
*1900.	Thomas D. Davis	Allegheny Co.
1901.	Francis P. Ball	Clinton Co.
1902.	William M. Welch	Philadelphia Co.
*1903.	William B. Ulrich	Delaware Co.
1904.	Adolph Koenig	Allegheny Co.
1905.	William H. Hartzell	Lehigh Co.
1906.	Isaac C. Gable	York Co.
1907.	William L. Estes	Northampton Co.
1908.	George W. Wagoner	Cambria Co.
1909.	Theodore B. Appel	Lancaster Co.
*1910.	John B. Donaldson	Washington Co.
1911.	James Tyson	Philadelphia Co.
1912.	Lewis H. Taylor	Luzerne Co.
1913-14.	Edward B. Heckel	Allegheny Co.
1915.	John B. McAlister	Dauphin Co.
1916.	Charles A. E. Codman	Philadelphia Co.
1917.	Samuel G. Dixon	Philadelphia Co.

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* Deceased.

THE TRUTH ABOUT MEDICINES

NEW AND NONOFFICIAL REMEDIES

Since publication of New and Nonofficial Remedies, 1917, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies":

Ferric Cacodylate; Iron Cacodylate. — A ferric salt of cacodylic acid containing from 39.7 to 44.9 per cent. arsenic (As). A grayish-brown powder, soluble in water. The use of ferric cacodylate has been proposed in cases where the effects of iron salts and the mild arsenic effect of cacodylates is desired. Dosage: From 0.015 to 0.1 Gm.

Ampoules Iron Cacodylate-Squibb, 0.03 Gm.—Each ampule contains ferric cacodylate 0.03 Gm. in 1 Cc. solution. E. R. Squibb and Sons, New York City (*Jour. A. M. A.*, April 7, 1917, p. 1043).

Ampules Iron Cacodylate-Mulford, 0.03 Gm. — Each ampule contains ferric cacodylate 0.03 Gm. in 1 Cc. solution. The H. K. Mulford Co., Philadelphia.

Acetylsalicylic Acid-Squibb. — A non-proprietary brand of acetylsalicylic acid complying with the standards of New and Nonofficial Remedies. E. R. Squibb and Sons, New York City.

Aspirin, L. & F.—A non-proprietary brand of acetylsalicylic acid complying with the standards of New and Nonofficial Remedies. Lehn & Fink, New York City (*Jour. A. M. A.*, April 28, 1917, p. 1261).

PROPAGANDA FOR REFORM

Piperazin and Other Organic Urate Solvents.—From a review of the literature P. J. Hanzlik concludes: There is no reliable evidence to show that piperazin, in small or therapeutic doses, imparts to urine urate solvent qualities, either by direct addition or after excretion; excessive doses produce a slight but negligible increase in uric acid excretion, the same being effectively produced by sodium bicarbonate or sodium citrate; there is no reliable evidence to indicate that piperazin can remove or prevent urate deposits; diuresis is uninfluenced by even large doses of piperazin and its administration does not materially reduce the acidity of the urine; scientific evidence, though limited, and clinical opinion indicates that piperazin is valueless in gout. Hanzlik also reports that there is sufficient evidence to indicate the worthlessness of the following as urate solvents: quinic acid, quinoline, colchicum, piperidin, Urosin, Lycetol, Sidonal, Lysidin and Urol (*Jour. Lab. and Clin. Med.*, February, 1917, p. 308).

Ambrine.—Ambrine is a French secret preparation that has been on the market for many years. It has recently come into prominence through sensational articles in the lay press. For all practical purposes it is solid paraffin to which some material has been added to make it adhesive and more plastic. For use it is heated until liquid and then applied to open wounds and burns, forming a relatively impervious dressing (*Jour. A. M. A.*, April 7, 1917, p. 1057).

Paraffin Films. — The popular propaganda for "Ambrine" having brought the paraffin film treatment of burns into prominence, Torald Sollmann has instituted experiments to devise a suitable, open formula preparation which is simple and yet meets all requirements. He suggests that surgeons who desire to experiment with the paraffin treatment of burns use simple preparations of known composition. Ordinary paraffin melting at about 50 C. (122 F.) appears to possess practically the mechanical properties of "Ambrine." A mixture containing some asphaltum (asphalt varnish, Trinidad or Bermudez, "asphalt cement" and Texas asphalt were tried) gives a preparation of superior pliability. Other formulas are given and their trial suggested (*Jour. A. M. A.*, April 7, 1917, p. 1037).

Citric Acid and Citrates.—Citric acid and the alkali citrates, potassium citrate and sodium citrate, are oxidized in the body with formation of carbonates and hence tend to increase the alkalinity of the blood. Citric acid and the alkali citrates tend to render the urine less acid and, in large doses, render it alkaline (*Jour. A. M. A.*, April 21, 1917, p. 1206).

Sterling Violet Ray Generator.—This is a small frequency apparatus with some vacuum and possibly other electrodes. The apparatus is not one for producing violet or ultra-violet rays in the scientific meaning of those words. The apparatus will not do the things claimed for it in the advertising booklet which includes the treatment of practically every ailment known to mankind (*Jour. A. M. A.*, April 14, 1917, p. 1141).

THE PENNSYLVANIA MEDICAL JOURNAL

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FOURTH CONFERENCE OF PHYSICIANS

HELD UNDER THE AUSPICES OF THE DEPARTMENT OF LABOR AND INDUSTRY OF THE COMMONWEALTH OF PENNSYLVANIA

HALL OF THE HOUSE OF REPRESENTATIVES, STATE CAPITAL, HARRISBURG, FEB. 16, 1917

MORNING SESSION, 9 A. M.

CHAIRMAN, DR. FRANCIS D. PATTERSON, Chief, Division of Industrial Hygiene and Engineering, Department of Labor and Industry.

CHAIRMAN PATTERSON: Gentlemen, we have come here today for one of our conferences and I believe we have a program which is the most interesting of any of the conferences we have had.

It is a very great pleasure and privilege to me to have with us this morning the distinguished Commissioner of Labor and Industry of this state who will say a word of welcome, Dr. John Price Jackson.

ADDRESS OF WELCOME

JOHN PRICE JACKSON

HARRISBURG

It does me good to see here you gentlemen who have been in positions of responsibility in dealing with human beings all through life, for it is men of your caliber who are needed to use their government in its proper manner, namely, as an instrument of usefulness to the people. The department which I have, at present, the honor to preside over is distinctly of a welfare nature in its activities. Now, by that term I do not mean an effeminate slopping over of sentiment which so often is looked down on by the men and women who really do things; but I mean welfare in its real sense, that makes for a higher standard of happiness, of living conditions, and of competency of our people. A department of that kind, to be of any use at all, has distinctly to take the attitude that it is a center set up by the people, around which the people may rally to join their individual strength into one mighty strength to perform this work. For the two or three years of the existence of the department we have gone along on that basis and we have reached out and called to the employers, the big employers, the men who control tens or hundreds of thousands; the little employers; the employees; the men who represent organizations of employees, maybe of tens of thousands of men; and the individual unorganized employees — we have called on the associations which are organized to carry on welfare work relating to that for which this department was established; and finally, we have called on the physicians and surgeons of this and surrounding commonwealths. The result of these calls, gentlemen, has been to me wonderful. There have been hundreds, many, many hundreds (and I am not sure but we can reach up to even a larger number of ciphers) of people who have come to Harrisburg or to other points and have given their time and money to help work out the problems which they could work out through cooperation because of this governmental center in such a department having been established. You, gentlemen, as you sit here are among that number. You are here possibly you say to get information yourself, and maybe you are; but more particularly, gentlemen, you are here to formulate and advance knowledge not only for yourselves but for the thousands, and hundreds of thousands, and millions of people who will be affected by every concrete system or thought you may promote which will lead toward greater welfare. The mere knowledge you yourself get, of itself, will be comparatively small in value compared to the other value.

We have today an enormous problem to meet. Last year we had two hundred and fifty some thousands of accidents of two days or more duration in this one commonwealth, with twenty-five hundred deaths, and all these casualties in our industries alone. I have every reason to believe that as to "Safety First" work and as to the safeguarding of dangerous places this state stands high, and that our accident rate is no greater than that of any other state in the United States — a quarter of a million of accidents, and of this number there were some sixty thousand compensable cases, persons disabled for more than two weeks. The medical attention to this quarter of a million has been a large proportion of the total expense paid out in compensation. I hope, gentlemen, that if it is 40 per cent. today that is paid for medical expenses with 60 per cent. for compensation, that as the years go by it will become 75 per cent. to the medical profession and 25 per cent. for compensation of the injured workingman; and that when that time arrives the employer will pay a sum total less than today, and that the employee who is injured will get a sum total greater. That may seem very curious. My reason for saying that is this: That I have every reason to believe that we are rapidly going to reduce accidents to 50 per cent. of the present schedule. Finally, I believe they will be reduced 75 per cent. over 1916. I believe that we will get down to 50 per cent. very quickly, and I reason on the basis of what has been done toward this end in the last few years in this country and in this state. Now on top of that (that is the reduction of 50 per cent. of our accidents) you gentlemen have it within your power, I believe, within the next few years to reduce the seriousness of accidents by your advancing medical and surgical skill another 50 per cent., thus making available a total reduction of 75 per cent. in suffering and in money loss to our people. Do not think, gentlemen, for one minute (let me use a slang expression) that I am talking through my hat, merely using words; I am not. I am talking after several years of experience right in the midst of this thing.

The doctors of this commonwealth, with the one year of the Compensation Law, have been generous. They have given far more than they have been compensated for, and the government will welcome a change in the arrangement whereby the doctors will be dealt with in a more fair and proper manner. I give you that as a pledge of what I know to be the attitude of the administration, and of what I believe to be the attitude of all factions and parties in this commonwealth. We believe that the arrangement for compensating the doctors could be improved. We also believe that a man should have medical attention for a longer period. We believe that for the medical attention to go only so far, possibly while the man still is most in need of medical attention, and then be cut off, so far as the legal relation goes, is bad. Personally, I believe the ideal thing would be to continue medical attention while it is needed and pay according to what is a just and ordinary fee in the district where the accident occurs, without any limitations at all. I doubt whether that will be acceptable to you possibly, or will be acceptable to our people. It may be too large a step in advance; but that is the ideal way, in my judgment. You are here not only to discuss that problem, but also to discuss the reduction of accidents. You are here also, you men who stand at the head of your profession, to tell us how to deal with vocational diseases; how to consider that great problem that is being pushed on us, health insurance; and many other great problems that should be brought to this department, this center post about which information should be gathered. It is for you, today, to take these matters up and give us your views based on your sound and wise experience. The medical profession possibly is the most potent single organization in this commonwealth or in this great nation when they go at a thing, something they believe in. We, therefore, particularly appreciate your coming here. We appreciate the coming of those men who have come even from beyond the borders of Pennsylvania, from Illinois, Indiana, Ohio, and the north, and the south. We appreciate, too, the efforts of the great men who have come here to lead the discussions, and we want to thank you not only as members of this one department for welfare, but in the name of the governor and the legislature and the people.

Chairman Patterson: I am sure that we are all inspired by the splendid words of Commissioner Jackson and whatever has been accomplished by us in this department in Harrisburg has been due to the splendid support which we have all received from him in our efforts.

There certainly is no more live question today within the medical profession in Pennsylvania than the subject of the relation of the physician to the Workmen's Compensation Law. Our General Assembly is in session at this time and it is only fitting and right that the medical profession of this commonwealth should be consulted as to the changes in the law, the framing of which they had absolutely nothing to do with, and in the drafting of which they never were consulted. So it is my pleasure and privilege to introduce to you a man who by his splendid surgical work is known to many of those present; who, in his capacity as chairman of the Committee on Workmen's Compensation of our state medical society, has made a study and comes before us to speak on what changes in the Compensation Law the physicians would like to have made.

I hope, before introducing Dr. Estes, that everybody will fill out the registration cards. We want to have a record of every man who is here, so as to have his name on our list in order to invite him to the conferences which we hope will be held in the future.

It is my pleasure and privilege to introduce to you Dr. William L. Estes of South Bethlehem.

WORKMEN'S COMPENSATION LAW OF PENNSYLVANIA FROM THE PHYSICIANS' VIEWPOINT

W. L. ESTES, M.D.
Director and Physician and Surgeon of St. Luke's Hospital
SOUTH BETHLEHEM

It will be well to state in the beginning of this paper that physicians are well pleased with, and that they endorse the general features providing for compensation of working people for injury, after a well defined legal method without unnecessary delay, and without the necessity of invoking the courts to collect and distribute the awards.

Acting as witness in damage suits for injuries has for many years proved one of the dreaded possibilities of a physician's daily worries and anxieties. To be rid of this possible and always inopportune and most disagreeable service, physicians would very cheerfully assume some additional burden of altruism. It is one of the provisions of the Workmen's Compensation Law to get rid of the necessity for and to prohibit all damage suits for compensation for injuries received while at work. Physicians gratefully hail this provision and are cordially thankful for the deliverance.

It is a well established fact that employees who formerly had recourse to lawsuits to recover damages for injuries were very apt to have their physical ailments augmented and prolonged through the psychical effect of the preparation and conduct of their suits. Besides, this privilege of suing for damages led to many cases of malingering and fraud. To be rid of these suits, therefore, unquestionably will shorten the periods of ailment and disability, and will lead to greater productivity and efficiency. This will prove a great gain to the whole commonwealth.

Members of the medical profession of course recognize the fact that they in common with other citizens of the commonwealth must bear their pro rata increase of indirect taxation to meet the additional cost of the manufactured commodities, made necessary by the provisions of the Compensation Law. This, too, they are willing to bear, provided on the other hand it be recognized and conceded that physicians shall have the right and free consent of other citizens to raise the cost of their services in proportion to the general rise in price of merchandise and manufactures. Here comes the crux of the whole matter as regards the working of the Compensation Law as concerns physicians.

To speak commercially, a physician's time and skill are his stock in trade. Gradually through these beneficent social laws greater burdens have been laid on the cost of production. This has led of course to increase in prices of commodities. In sympathy with this, labor has demanded and received higher wages. Professional people who try to live by service to the community rendered possible by special education and training do not come directly within the wage lifting effect of these laws. People generally fail to see that unless these professional people too receive larger emoluments one of two things must happen, *i. e.,* (1) members of the professions must suffer very serious deprivations and their families be obliged to live in poverty and perhaps in want, or (2) professional men must add some other means of increasing their incomes besides their immediate professions; thus taking their time and attention from their vocations and lessening the vigor and quality of their legitimate service. Either of these alternatives is bad, not only for the individuals directly concerned, but for the community generally.

A state of affairs which will lead to this condition should be prevented. Physicians believe therefore that their clientele should recognize the true state of social affairs and be willing to pay more than the former scale of fees.

It is important to know whether the Compensation Law accomplishes this end. Article III, Section 305, of the law reads as follows:

> "Every employer liable under this act to pay compensation shall insure the payment of compensation in the State Workmen's Insurance Fund, or in any insurance company, or mutual association, or company authorized to insure such liability in this commonwealth, unless such employer shall be exempted by the bureau from such insurance. An employer desiring to be exempt from insuring the whole or any part of his liability for compensation shall make application to the bureau, showing his financial ability to pay such compensation, whereupon the bureau, if satisfied of the applicant's financial ability, shall by written order make such exemption."

This provision places the actual liability for payment of compensation on insurance companies for the most part, as very few firms care themselves to meet the insurance.

Practically all of this insurance business is in the hands of less than a dozen companies operating in the state. These companies, of course, require the services of physicians, but as a rule only one or two physicians in any one locality are engaged. Employers of labor as a rule also have physicians employed to look out for the first aid or the emergency surgery of their establishments, or they make arrangements with local hospitals to do this, thus indirectly obtaining the service of one or more physicians. This arrangement leaves out a large majority of the physicians in the several communities entirely from participating in the service required by the Compensation Law.

The insurance underwriters are not in the business for any altruistic purpose. They wish to make all the money out of it they can. Naturally they pay as little for medical and surgical service as possible. It is a well-known sociologic law that the prevailing prices and customs of a large market, whether of labor or vegetables, determine the ruling scale of prices in the community. This is true of professional services almost as much as for ordinary commodities.

For instance, the writer knows of a large community in this state where it formerly was the custom of mining companies to make a contract with physicians on the basis of one dollar a year for each family man employed in the mines, and fifty cents a year for each bachelor employed, and the physicians were engaged to treat, on call, any and all members of the married man's family, and to treat the bachelor himself for one year without further remuneration. Where there were thousands of men employed, in the aggregate the remuneration for the physician was not inconsiderable. One man, of course, could not do all the work necessary, and he was obliged to contract with one or more assistants to help him. The result was that this whole region was permeated with the contract idea, and no physician could practice in the region except on "contract basis"— an arrangement which was disastrous except in cases where large bodies of men were concerned, because isolated families demanded the same scale of fees as the large contract physicians obtained. In that community no physician could live who did not belong to one of the large contract concerns.

It is just as true of physicians' services as it is of ordinary commodities that supply and demand will regulate the price. Also, excellence and success will always demand and receive superior consideration and superior remuneration.

The increased requirements which our state law as well as the majority of the state laws demand of a physician for graduation and license make it necessary for men going into the profession to spend a much longer time in preparation, and it is much more expensive to obtain a medical education than formerly. Also, the strict scrutiny of medical colleges by the bureaus or state boards of education and licensure has resulted in the suppression of a large number of inferior colleges and the combination of a number of better class schools. All this has resulted in very markedly diminishing the number of physicians annually licensed to practice medicine. Soon the number of physicians will be adjusted to the actual needs of the communities; and not be excessive as hitherto they have been. When this takes place, physicians may demand and receive remuneration for their services from individuals, from companies, or from the state, as the case may be, commensurate with their superior preparation and skill.

The present condition, however, is different, and it is the present we must consider.

As was stated a little while ago, only a few physicians, comparatively, will be required to carry out the provisions of the Workmen's Compensation Law as now provided, but the prevailing scale of fees for these physicians will become the rule for all physicians of the region.

As regards the time of remuneration and the maximum payment for medical services the insurance companies base their rates on Article III, Section 306, paragraph (e), which is as follows:

> "(e) During the first fourteen days after disability begins the employer shall furnish reasonable surgical, medical and hospital services, medicines and supplies, as and when needed, unless the employee refuses to allow them to be furnished by the employer. The cost of such services, medicines, and supplies shall not exceed twenty-five dollars, unless a major surgical operation shall be necessary; in which case the cost shall not exceed seventy-five dollars. If the employer shall, upon application made to him, refuse to furnish such services, medicines, and supplies, the employee may procure the same, and shall receive from the employer the reasonable cost thereof within the above limitations. If the employee shall refuse reasonable surgical, medical and hospital services, medicines and supplies, tendered to him by his employer, he shall forfeit all right to compensation for any injury or any increase in his incapacity shown to have resulted from such refusal."

The law, it appears, allows a physician only fourteen days' remuneration from the employer for each case. Of course, the insurance companies will not pay for any longer term, and offer to pay for much less.

In order to get some definite idea of the average time required for absolutely necessary treatment, the records of a little over seven hundred cases of employees sent to St. Luke's Hospital for treatment during the last fiscal year were analyzed. It was found that 14.28 days was the average time for each case in this hospital. St. Luke's Hospital, however, has tremendous pressure on its accommodations on account of the long waiting list, and patients are sent out of the hospital just as soon as they are able to be about; sometimes long before they require no further treatment, in order to make room for others. Something should, therefore, be added to this average number of days in the hospital. I find other hospitals have an average of about seventeen days per patient, and this is nearer to the normal average. It is evident, therefore, that when treated in a hospital where conditions for rapid recovery are usually much better than at the patient's home, the fourteen days allowed are not adequate for the proper treatment of injured men. Under the existing conditions, patients have received the impression that it is not necessary for them to pay the doctor, no matter how long he treats them after the injury, and they often refuse to pay for treatment when it goes beyond fourteen days. The physician is as a rule, therefore, paid for only fourteen days' treatment. As the average number of days of treatment, as has been shown, goes beyond this period, he will have to give up the case or else continue the treatment at a dead loss to himself.

As to the effect on hospitals, I take the liberty of quoting from a recent paper by Dr. G. W. Wagoner of Johnstown, the following record and computation:

Compensation cases admitted..		79
Paid in full by compensation.	9	
Paid in full by compensation and employer...............	2	
Paid in full by employer	4	
Paid in full by patient	3	
	—	18 paid in full
Paid in part by compensation.	26	
To be collected...............	35	
	—	61 not paid in full
Total number of hospital days for cases......		2,297
Total cost of maintenance at ward rate of $10 per week, including Roentgen ray, operating room, anesthesia and laboratory charges		$4,226.50
Total cost of maintenance at per capita cost of $1.71 per day, including above charges.		4,733.83
Under provisions of Compensation Law amount that should be received...........		2,750.00
Actually received from compensation to date		808.26
Received from employers for patients......		101.25
Received from patients.....................		394.61
Due from compensation—will probably be collected in full...........................		527.09
Guaranteed by employers....................		290.75
Total received and to be received on account of compensation cases....................		$2,121.96
Net cost to hospital of compensation cases at ward rate of $10 per week...............		2,104.54
Actual net cost to hospital of compensation cases at per capita cost of $1.71 per day..		2,611.87

This summary shows that the hospital alone rendered services costing $4,733.83, and received from all sources for their compensation cases $2,121.96. Over $2,600.00 were required to make up the deficit, and this was drawn from the charity fund. This fact classes these workmen as charity cases, for the taxpayers and general public supply the charity fund.

Physicians think, therefore, that this period of direct responsibility for payment for medical and surgical treatment should be extended. Thirty days has been advocated as the period for this direct responsibility for payment, and the board has been requested by the state medical society to suggest this amendment to the Compensation Law.

Now as to the amount allowed for compensating the physician, leaving out for the present the maximum allowance for major operations. The amount stated for the fourteen days' treatment is not to exceed $25. Suppose the physician is called to treat a severe lacerated wound of the thigh, he will need (1) antiseptics, (2) sterile gauze, (3) a fountain syringe perhaps, (4) drainage tubes, (5) sterile absorbent cotton, (6) a splint, (7) bandages. It is presumed he has already the necessary surgical instruments, each use of these of course entails wear and dulls them and adds to the physician's expense.

His actual outlay of money in this case will be about as follows: Antiseptics, 5 cents; gauze, 15 cents; cotton, 12½ cents; tubes, 10 cents; splint (improvised), 20 cents; bandages, 10 cents; narcotics, 10 cents; total, 82 cents. He will have to use narcotics to relieve pain before and after dressings. The first dressing will cost at least half as much again. So the expense will be for first dressing, $1.22; daily dressings for first week, $5.74; three dressings for second week, $2.46; total, $9.42. Less daily charge for splint which may be used without further cost after first dressing, $1.80, will give a balance of $7.62, which will be what he actually has to spend to treat the case for fourteen days. Reckoning two visits a day for seven days, $14, and one visit for seven days, $7; $21 ought to be the lowest charge for his time. Deducting the cost of his dressings, $13.38 would be his net income for the two weeks' treatment. This is an exceedingly small return for treating such a case for this length of time.

A severe burn would be a great deal worse. Such a case would require double or triple the outlay for dressings, require daily dressings for two weeks and be in such condition at the end of the two weeks that the physician could not conscientiously give up the case. A laboring man whose weekly compensation is only $10 after two weeks, given the disposition to pay the physician for continuing his treatment, would not possibly be able to do so. The physician would therefore not receive any compensation for his services, but would actually be out of pocket for his treatment.

Evidently, the maximum amount allowed for treatment should be increased. This is also advocated by the Medical Society of the State of Pennsylvania.

As was noted in former papers on this subject, [1] the writer canvassed the physicians of the whole state in order to learn their views and experience of the working of the Compensation Law. The following questionnaire was sent out and answered as follows:

1. How does the law affect the physicians in your district?
2. How does it affect the hospitals in your district?
3. Does it prove a blessing to the work people?
4. What has been the experience with insurance companies in your district?
5. In the light of the experience in your district what amendments would you recommend?

To the first question, 21 replied that the law affects physicians favorably; 6 replied it does not.

To the second question, 12 replied that the effect on hospitals is good; 9 replied that it makes no difference; 6 replied that it is objectionable.

To the third question, 19 said that it proves a blessing to the workmen; 8 says it does not.

To the fourth question, 20 replied that experience with insurance companies has been satisfactory; 7 said it has been unsatisfactory.

To the fifth question, several suggestions of amendments were offered.

The reports of the councilmen of the several districts coincide practically with those sent directly to the writer from twenty-seven county medical societies.

This indicates that the majority of physicians are fairly satisfied with the provisions and working of the law.

Boiled down, however, and taken in connection with private conversations and letters from over the state, the satisfaction comes from the fact that the collections for services are surer and quicker than formerly. Practically every one of them agrees that the amount and time of remuneration for physicians are inadequate. If their whole practice were confined to this class of cases they would find great difficulty in supporting their families. But, just as artists must accept very low prices for the pot boiling productions of their brushes in order to keep a little ready money for some of the daily wants of life, so physicians are also forced occasionally to accept inadequate and altogether humiliating fees because they are fairly certain to be paid with much more promptness than their usual clientele pays. It is not true in this case that he who pays quickly doubly remunerates. All concerned in this unfortunate state of affairs should bear in mind, to continue the illustration which seems quite appropriate, that the artists in producing their pot boilers have little thought for the especial scheme of their work; they are frequently commissions, that is to say contract jobs, to produce a suggested object in a certain way for advertisements or illustrations. In short, they are mechanical productions. Just so it is and must be with the contract work of physicians. They feel that it is humiliating work, done for extremely inadequate fees, and restricted by directions or rules of a company, naturally the quality of the service if originally good, will deteriorate until finally the service is as cheap as the payment is small. This, as it were, unfrocks the physician, lowers his self-respect, and engenders habits of rapid, slovenly practice which will soon wreck his career as an up-to-date scientific practitioner.

It is particularly bad for the poor patient who will receive the unskilful and mechanical treatment which will prolong his suffering and disability, perhaps result in permanant disablement for which there was originally, from the nature of his injury, no good reason.

It is also bad for the employer as it leads to much longer disability and perhaps to the extreme length of time allowed for compensation.

It is bad for the community. A physician who has lost his self-respect and his habits of careful examination, diagnosis and skilful treatment, serves as a deteriorating influence for all who come in contact with him. It takes away the influence of many individuals therefore from the uplift of scientific work, skill and thorough efficiency. A community which pays cheaply for service usually gets that kind of service, and this cheap influence pervades and finally dominates the whole region. From little, little may be expected.

Bearing all this in mind, thoughtful physicians have been trying to find a solution of the difficulty. A commission of physicians representing every branch of the legalized practitioners of the state was organized to propose definite suggestions for amendments to the law. After careful consideration and consultations, and conferences with the Workmen's Compensation Board, these recommendations have practically concentrated on the two suggestions of this paper, namely, (1) extend the period of direct compensation of physicians from fourteen days to thirty days; (2) increase the maximum compensation for treatment from $75 to $200.

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[1] The Workmen's Compensation Law, read before the Medical Society of the State of Pennsylvania, in September, 1916. The Workmen's Compensation Law, the Viewpoint of the Physician, read at the Fourth Annual Welfare and Efficiency Conference, Harrisburg, Pa., Nov. 21, 1916.

If one carefully considers the law and has had experience in its practical working, he will almost surely conclude that if these two recommendations should be embodied as amendments in the law, without any restrictions or qualifications, the other disagreeable features and difficulties could easily be resolved.

Another matter which physicians must insist on, which comes as a direct result of the requirement of insurance of payment to the workingmen, is to see to it that every insurance company agrees to pay its physicians for their services the same rate of fees these physicians are accustomed to ask and to receive from their other patients of like standing in the community. This must come from organized effort of physicians through their city, county and state medical societies.

The legislators and administrators of the laws of our commonwealth should bear in mind that whatever legal enactment tends to lower the dignity and efficiency of any class of citizens of the state must of a necessity affect the whole people.

Conservation of efficiency is one of the cardinal ideas of the Workmen's Compensation Law, this idea should extend to the service of all the people and not to one class alone.

A state obtains its status of whatever kind from its citizens. Our state cannot in any sense afford to lose its standing amongst the federated states. We should continue to be proud that we are citizens of the Keystone State.

805 Delaware Avenue.

DISCUSSION

Chairman Patterson: The discussion of this paper will be opened by one who, I am sure, is well known to every member of the Medical Society of the State of Pennsylvania and one whom those who come from other states will be glad to hear from.

I take pleasure in introducing Dr. Charles A. E. Codman, president of the Medical Society of the State of Pennsylvania.

Dr. C. A. E. Codman, Philadelphia: Mr. Chairman and fellow members; Dr. Estes in his paper has emphasized several points which have been discussed by medical men. The time allowance of fourteen days for the treatment of compensation cases has proved entirely inadequate. The consensus of opinion calls for the lengthening of the period to thirty days. From the statistics quoted it seems the average number of days a patient remains in a hospital would be about eighteen. The period of disability for medical attention should date from the time the patient applies to the physician or surgeon for treatment. Many times, through ignorance, misunderstanding, and neglect, a man will not apply until some time after he is injured. As he is allowed to be compensated for fourteen days only, if he applies on the eleventh or twelfth day there is nothing left. Then he becomes a free case.

In order to avoid misinterpretation, the term "major operation" as applied to the comparative seriousness of operations should be eliminated entirely from the Act.

In the discussions which have taken place amongst physicians, the most serious objections have been voiced against the attitude assumed by the State Workmen's Insurance Fund and the other insurance companies, in dealing with physicians in reference to the payments for services rendered. Those in authority, whose duty it is to pay the bills rendered by physicians and surgeons, have assumed it is also their right to dictate what the charges shall be. In a letter to a Philadelphia physician the manager of a certain insurance company stated: "The office visits of $2 appear to us to be excessive as compared with the prevailing charges of physicians in other localities for similar treatment, the prevailing charges being as follows: office visits, 25 cents to $1; home visits $1 to $2; first-aid $3, drugs and dressings included. *We have adjusted this bill in accordance with the prevailing charges.*" Another company writing under date of Jan. 31, 1917, states: "We note in your bill the rate of $2 for office visits. The rate on which this company and numerous doctors throughout this city have agreed for office treatment is $1 per visit, *and we must request that you furnish us with a corrected bill at that rate.*" This dictatorial attitude is humiliating and insulting. When an insurance company attempts to dictate to a physician the value of his services it is overstepping the limit of toleration. Dr. Estes has shown that it costs at least $1.22 for the first dressing of a case and later dressings will cost at least 82 cents a piece. The employer pays the insurance company a premium based on the amount of wages paid. The employer believes his employees will receive adequate care and attention and that the physician will be paid his fee. The manner in which the insurance companies treat the employer and physician is perfectly obvious. This commercialism will never act as an incentive for the best and most skilful to treat compensation cases. Physicians have given far more than they have been compensated for. As a result of this continuous friction there is a demand that the Compensation Board appoint a medical referee who shall devote his entire time to this work or that the Act be amended so there will be a Board of Appeal to whom all such disputes will be referred.

The next practical point in connection with the treatment of compensation cases is in reference to the physician who renders first aid. At the present time the man who renders first aid and probably saves the patient's life does not receive anything. There is no provision made for the physician who has performed emergency work. A Board of Appeal could quickly dispose of all such cases.

Dr. Estes has shown in his paper, by the statistics quoted from Dr. Wagoner, that the public is actually paying out money to treat compensation cases.

The maximum of $75 should be increased to $200. The law was passed without advice from, or consultation with the medical profession. It was drafted in a time of great industrial depression and passed when wages and the cost of living were low. With these thoughts in mind the Committee on Public Policy and Legislation of the Medical Society of the State of Pennsylvania, through Chairman Dr. J. B. McAlister, called a meeting in Harrisburg in November, of similar committees representing the Homeopathic, and Eclectic Medical Societies. They met and went over this entire subject, agreed to form "The Legislative Conference of the Medical Profession of Pennsylvania," and for the first time in the history of the profession, we will come to Harrisburg as a united profession and ask that the Compensation Law be changed so as to be more satisfactory to the medical profession.

Dr. Patterson: It is not even open to dispute that the Compensation Law needs changing. Dr. Estes and Dr. Codman have both ably voiced the sentiments of those who have been in communication with them, but as Dr. Estes stated, his question did not even receive a reply from 10 per cent. of the physicians of this commonwealth, and so, gentlemen, with our Legislature in session, it seems to me that this is the golden opportunity for the medical profession to stand right up and tell the Legislature what they want, and I hope and trust that all of you present will have no hesitancy in getting up and speaking at this time, because our views will reach the Legislature and I am sure that they will have a material effect.

The subject is open for general discussion and in discussing it please give your name, because the stenographer is not a mind reader.

Dr. Frederick L. Van Sickle, Olyphant: I am very glad that Dr. Patterson has made it plain in his last statement that the remarks we make here shall come to the ears of the Legislators of Pennsylvania, because we have felt as doctors that all we have said has gone into thin air and has never reached the ears of those who make the laws. When the bill providing for workmen's compensation was passing through the process of making we were approached with the statement that the physicians were altruistic, they were magnanimous, they would make themselves a sacrifice so that the workingmen of Pennsylvania could have a bill such as they were to present, and that we as medical men would help the thing along. Some of us have done this for the last twelve months. We have been able to observe the effect of the Workmen's Compensation Act on the medical profession and on employee and employer. We, as medical men, can say only this: If it has been a benefit to the workmen it is to be commended. It has benefited, to some extent, some of the medical profession, but in order to make it a fair proposition Dr. Estes' article and the work of the state society should be thoroughly presented to the State Legislature so that when we go out next year into the medical organizations we cannot have Ohio, New York and some others say to us, "You have no medical representative on that board, you have no medical referee to appeal to." We should have, gentlemen, some one who should be the head, to be appealed to, in reference to medical matters. I understand that the board has the right to appoint a medical referee to assist them in their work. Just how that medical referee should be appointed, or elected, is immaterial; but we contend that there should be somebody, some one man, a medical representative, in the state of Pennsylvania to appeal to on the question of the conditions as presented by Dr. Codman, in relation to insurance companies, and which we hear through the medical press of the state of Pennsylvania. Many of those things come to us from various county societies, and it is belittling for us to give up our time and service and then have the bill as presented cut in half, or quarter. Gentlemen, let us have a medical referee.

Dr. A. W. Colcord, Carnegie Steel Company and Pennsylvania Railroad Company, Clairton: I cannot add anything to what has been said by Dr. Estes and Dr. Codman, but I want to say "Amen" to it. I believe we have had two splendid papers and I think we ought to stand back of those men and use our personal influence with our Legislature so to amend this Compensation Law that it will be better, not only better for us doctors but better for the workingman. Personally it has not affected me but it has affected my neighbors. I have served notice on every insurance company that I have been working for that I would stand for no prorating, and I believe that we, as doctors, ought to take that stand. Just to illustrate what it means: I was called to attend a broken leg for a brother physician of mine who was absent. I reduced the fracture of both bones of the leg. The case was three miles away, and I sent a bill for $10 which was their fee bill, ridiculously low, and I received a check for $3.15, prorated. I do not believe we ought to stand for anything of that kind as doctors. It is belittling to us. I served notice on every corporation that I did work for that I did work for them and not for their insurance companies; that my bill would be rendered to them and that it must be paid in full; that I would try to make it reasonable and that they might get what they could out of the insurance company; that I was not working for that insurance company and that no insurance company could fix my charges.

I want again to endorse what Dr. Estes and what Dr. Codman have said. Those are splendid ideas and let us stand back of them.

Dr. John D. Milligan, Pittsburgh and Lake Erie Railroad Company, Pittsburgh: I cannot help but speak on this subject of endorsing both papers fully. The experience given by my friend Dr. Colcord and others is the same experience that I have met with and I insist that when it comes to a time when insurance companies can dictate to the nobility, gentlemen, because I insist that the surgeon and the physician of today are noble characters—when it is necessary that we have to take off our hats and bow to insurance companies, we should also relinquish our diplomas and say to them, "We are not vassals." I insist that the point at issue should be covered by a resolution by this body sufficiently strong to reach every legislator and to let them know that in the hands of the physicians and surgeons of this commonwealth is where their destiny lies. We are not anxious to knife a man because he is in a position to do for us, or against us, but way down in our hearts there are some thoughts recorded to the effect that we must at least be fairly treated and we insist on it. I therefore think that it is the duty of this body to pass such resolutions that will eradicate the smallness of politics and bring this question down to one of manhood.

Dr. J. B. McAlister, Ex-President of the Medical Society of the State of Pennsylvania, Harrisburg: I want to say one word along the line of practical politics in accomplishing what you want to have done. We must do more than pass a resolution here. This is a representative body, probably reaching every county in this state, and if every man here would do his duty along practical politics, we might accomplish something. This question of amendment to the Workmen's Compensation Law has been agitated in the profession for one year and there is no excuse for any physician not being thoroughly familiar with the law and with its unfairness and inconsistency to the medical profession. We have asked not only the Medical Society of the State of Pennsylvania, but the Homeopathic Medical Society and the Eclectic Medical Society, and they all have been trying to arouse the physicians to be interested in it and to talk to their legislators and inform them what the medical profession wants. Yet in my interviews with the members of the Legislature since they have been here (they have not been in Harrisburg very much of the time yet but I have had opportunity to talk to quite a number of the members of the House) I believe that not more than one or two of those men have said to me that they have heard from their doctors at home. These amendments to the Compensation Law are new to them; they ask me, "What do you want and what is the matter with it?" They very graciously say, "We will do what we can, we feel favorably disposed toward the doctors," but they are not going to listen to us doctors here in Harrisburg. We have no influence with them, they have no interest in us, and unless the doctor at home convinces his member of what he wants, the members of the Legislature are not going to pay special attention to the profession.

I take this opportunity of pleading with you men that, when you get home, you, yourselves, secure all the influence you can in your profession, among the laymen and among employers of labor, because throughout the state there are many large employers of labor who realize the unfairness of this law; there are many corporations in this state which say to the physician that he shall attend to the injured as long as they require attention, and I have had many say to me that the law is inadequate and they realize it; and when you plead with your legislator tell him that the medical compensation in Pennsylvania is lower than in any other state in the Union. The state of Pennsylvania is not treating its medical profession honestly nor fairly nor honorably. You can tell them also we are simply asking to be paid fair compensation for work that the state compels the doctors to do. If you men will influence your legislators so that when they come here they will be familiar with the subject, we on the committee, will try to watch the progress of the legislation and keep you informed as well as we can. But your members must know what you want, not what we are asking for. You can tell them also it is not raising the fees of the medical profession, we are simply asking to be paid fair compensation for work the state compels the doctors to do.

Dr. I. K. Urich, Calcite Quarry Company, Annville: I am addressing you as a physician and I am also addressing you as a member of the House of Representatives. We all know in the first place that the bill for workmen's compensation that was passed in the last legislature was a great injury to the medical profession, no matter from which angle you look at it. It has been lowering to the dignity of the profession in every way that you may view it. When you take into consideration, gentlemen, the preparation necessary to enter the medical profession (that in order for a man to become a physician or surgeon in this state he has to devote eight or ten years of his life, and of the best years of his life, to prepare for the emergency which may arise) it is up to the people at large properly to dignify that man that stands today as a surgeon or a physician in this great commonwealth of ours, and not to have insurance companies say what his fee shall be for work that he does or is called on to do in following out his vocation. When there is a call at any time for a physician in an accident case you want the physician's services immediately, there is no time to state to him that you are going to give him 50 cents for his services, or $1, or $2, as the case may be. What you want is to let that physician charge the rates that govern in the locality that he represents. And it is up to you as a body today to take action here that will reverberate through the Halls of the Legislature when presented there and that will bring the results we are after.

I have come here today, having spent almost a week in the Legislature, I could hardly spare the time, but I could not at this particular moment let this go by without being present to see what is going on, that the profession is properly represented, and receives what it should receive. So I say to you, gentlemen, before we part today we should take decisive action in this matter, and see that we are properly represented in our Legislature and see that proper action is taken on our work when we present any resolutions that we desire to have passed.

Dr. John D. McLean, Philadelphia: The keynote of the success we all wish for was, I think, sounded by two speakers—two remarks that were made, one by the chairman and one by Dr. McAlister. The chairman of this body stated that the most powerful body of men in any state is the physician as a body and as a unit. Is the medical profession of Pennsylvania today a unit? More so than ever before, and I think we realize that in view of the creation of the Legislative Conference of the Medical Profession of Pennsylvania, which was created last November, representing the entire legalized medical profession in Pennsylvania, our school, the homeopathic and the eclectic. Another remark made by Dr. McAlister which after all is the only thing that will bring us success, and it is the one thing for which we ourselves are to blame, is that we as individuals do not, or have not known just exactly, in detail, what we want. Let me plead then with you as Dr. McAlister did, that you will read your state Journal, that you will read your *Journal of the American Medical Association,* and you will read in them just exactly what the profession wants, cull it out in a few words, or a few sentences. Then what can you do? Do just as Dr. McAlister pleaded for you to do, go to your legislator, to your representative, to your senator, and tell him, "That is not what I want, but what the medical profession wants." Have you not heard here today that the representatives and senators do not know exactly what the profession wants? They have had it in broad general terms but not in detail. It is therefore for us, not for the medical profession, but for us, the men who are in this room today, to single out our representatives and senators and tell them just what we do want.

Dr. J. C. Stubbs, National Malleable Castings Company, Chicago: In Illinois our rate is somewhat higher than yours, $200 and eight weeks' treatment. We have no between pay to the doctor and the hospital. The organized profession of Illinois is now planning to go before the legislature which is in session and ask that this two hundred dollar limit be raised, also that the eight weeks' limit be raised. Dr. McAlister struck the keynote when he said you must do a little practical politics, Mr. Chairman. You must see every man who occupies a desk in this room, either personally or by letter, and every man who occupies a desk on the other side of the house. Tell them specifically and definitely what you want.

While we are talking about that subject, gentlemen, I have two pamphlets about which I wish to speak. The one is the Workmen's Compensation Act of Illinois as revised and in force since July 1, 1913, and amended July 1, 1915. The other booklet that I hold is headed "Medical Provisions of the Tentative Draft of an Act for Health Insurance, by the Committee on Social Insurance of the American Association for Labor Legislation." The Illinois Compensation Act came from the same source that this proposed act hailed from, and while you are discussing one here today you want to be discussing the other, because twenty-three of these so-called model bills are to be introduced in the various legislatures now in session in this country. The Illinois organization is now actively preparing to fight this second act. We do not feel that we have fully digested or that we are fully familiar with the first, the Workmen's Compensation Act, and now to place on us this second sociological scheme will put us in exactly the same position as the physicians in England find themselves, and the physicians in Germany have labored under and struggled under for years, and those in Austria, in some parts of Russia, in Spain, in Italy, and elsewhere. You might just as well take not two bites of a cherry, but one, and when you see your various legislators at least stave off this second act until you are more familiar with and have greater justice rendered you under the first sociological proposition. I would call attention to the designation, "American Association for Labor Legislation." This body is not a labor organization; it is made up of sociological and social welfare workers, of college workers, and of college professors; they are the controlling interests in it.

Dr. Patterson: You have heard the suggestion made by Dr. Urich, that we should have appointed here a resolution committee in order to draw a set of resolutions to be presented as a memorial to the General Assembly. What is your pleasure? Is it your pleasure that such a committee be appointed? I now ask for a vote. (The motion to appoint a resolutions committee was put and carried.)

The Chair will appoint on that committee, Dr. Milligan, the author of the resolution; Dr. Codman, president of the Medical Society of the State of Pennsylvania; Dr. McAlister, past president of the Medical Society of the State of Pennsylvania; Dr. Urich of Annville, and Dr. Edward Martin of Philadelphia. I am sure that if this committee will draw up a set of resolutions to be presented sometime at our afternoon session that we can then discuss this matter further.

If there is any one subject that is attracting a great deal of attention at this time it is the subject as to whether or not there shall be compensation for industrial diseases. It seems hardly a fair proposition that the man who loses the use of his hand due to wrist-drop, or lead poisoning, should get only the sympathy of his employer, and the man who has lost the use of his hand through an industrial accident should in a measure be compensated pecuniarily for that loss and for his pain and suffering. There are a great many conditions which are on the borderline. Take, for instance, the question of anthrax, we all know there must be an injury or prick of the skin in order for the germ to enter. Some compensation boards have ruled that cases of anthrax are entitled to compensation, and still other boards have ruled that they are not. I know of no man anywhere in the world who is a greater authority on the subject as to whether or not there should be compensation for industrial diseases than the gentleman who is to address us. He has made a study of this subject in many countries and has devoted to it a mind which is without a peer. I take great pleasure in introducing to you Dr. Frederick L. Hoffman of Newark, N. J., who will speak on the subject of Compensation for Industrial Diseases.

COMPENSATION FOR INDUSTRIAL DISEASES

FREDERICK L. HOFFMAN
Statistician, Prudential Life Insurance Company
NEWARK, N. J.

Preliminary to my discussion I desire to express to the chairman my sincere appreciation of having been asked to participate in what, to my mind, is one of the finest illustrations of a real democracy at work; an illustration of a method of public deliberation on important public questions, where those who are not in the legislature meet in the halls of the legislature to give expression to their views and suggest the proper course of action to be pursued in conformity to the judgment of the people at large. One of the greatest difficulties with which we are confronted in a country of such enormous extent as the United States is how better to understand each other and decide on a course of action compatible with the highest and best considerations of public policy. A member of the legislature is frequently at a serious disadvantage because of the fact that he cannot come in close touch with the interests or conditions that demand legislative consideration. It therefore seems altogether fitting that the State of Pennsylvania should receive proper credit for having initiated four or five years ago, these annual welfare conferences, for which the Hon. John Price Jackson is primarily, if not entirely, responsible. I am not aware of any similar procedure having been adopted by any other state. It was my privilege to participate in the first and second of these conferences, and I am indeed very glad to be with you on this occasion, at which the questions of fundamental concern are chiefly of medical importance.

The last speaker very briefly referred to the subject of health insurance. If I had the time I would gladly enlarge on a question which has assumed national importance, not because of its intrinsic merit, but because of an extensive propaganda carried on by a small group of men in charge and control of the American Association for Labor Legislation. At a time when workmen's compensation practice is still in its initial stage, a demand is made for the establishment of an enormous supplementary social insurance system, which has nothing in common with the underlying principles of social justice which led to the adoption of workmen's compensation statutes by more than thirty states during the last five or six years. A deliberate effort is being made to delude the public by an array of false allegations and misleading assertions without a parallel in the hysteria which often precedes the calm public deliberation in matters of labor and social reform. Now, whether it is necessary or unnecessary, desirable or undesirable, that this country should adopt the German state policy of social insurance, is entirely secondary to the question whether assertions and allegations brought forward by the American Association for Labor Legislation are entitled to public confidence and deserving to be considered matters of fact and truth beyond dispute. Without enlarging on the subject at this time, I desire to place on record my profound conviction that the suggested legislation on compulsory health insurance is exceedingly ill-advised, and that most of the arguments brought forward in support of the contemplated measure are obviously contrary to the facts, which are a matter of official record.[1]

The principles of workmen's compensation are as yet far from having been perfected in important matters of detail, and they require to be enlarged in a most important direction, which has heretofore been neglected, and that is the inclusion of reasonable compensation for industrial or occupational diseases within a rational definition of the term. No one questions the enormous social and economic value of workmen's compensation for industrial accidents, and by the same method of reasoning it is generally conceded that the injuries resulting from industrial occupational diseases should be compensated for in a similar and liberal manner. Some years ago the American Association for Labor Legislation interested itself in this matter, and by first working for the enactment of laws providing for the reporting of occupational diseases, and subsequently for their inclusion within the plan and scope of workmen's compensation legislation, it gave furtherance to a cause of considerable practical importance to labor interests and the public at large. By concentrating all of its efforts on compulsory health insurance, the association is no longer active in a field of useful effort which it might rightfully consider peculiarly its own. Considering the few years since workmen's compensation for industrial accidents has been in actual operation, it is not, however, seriously discouraging that thus far no decisive action should have been taken with regard to the required compensation for industrial diseases. It is, however, most regrettable that there should not be a more active public interest in a condition which is obviously evidence of gross unfairness and inequality, in that the man who is injured by lead poisoning, or anthrax, or industrial phthisis, in consequence of his occupation, is as rightfully entitled to compensation as the man who is injured by a boiler explosion, or a train collision, or the fall of a ladder, etc. It is equally regrettable that there should not have been the necessary active interest on the part of the medical profession to give furtherance to the scientific study of occupational diseases; but it is distinctly encouraging that within the last few years at least two important textbooks on the subject should have been published in this country, and that numerous special reports on particular diseases, or ill-health-producing industrial conditions, should have been made public through the United States Bureau of Labor Statistics, and other labor and health boards and organizations — all of which is evidence of an aroused public interest which, it is a foregone conclusion, will, in course of time, lead to a better understanding of the facts of a truly deplorable situation which urgently demands legislative interference.

The medical profession properly concerns itself primarily with the practice of medicine as a healing art, but the prevention of disease is today recognized as of equal importance with the treatment of disease for the purpose of a cure. The physician who devotes his time and thought to the elimination of conditions that give rise to disease is as great a benefactor to the community as the one who has become a beloved member of the community because of his devotion to his art and his obvious curative skill. Industrial hygiene is no longer a matter of incidental consideration, but it has attained to the dignity of a well-defined branch of general medicine. Such admirable contributions as have been made, for illustration, to the subject of arsenical poisoning, by Legge; lead poisoning, by Oliver; mercurial poisoning, by Teleky; chronic phosphorus poisoning, by Hamilton; anthrax, by Frothingham; compressed-air illness, by Erdman; effects of diminished atmosphere, by Kober; fatigue and occupation, by Lee; occupational ear diseases, by Blake; occupational skin affections, by Bowen; occupational cancer by Tyzzer and Ordway, etc., are suggestive indications of a branch of medical science which is as yet in its infancy, largely because of the neglect of countless medical practitioners to take cognizance of the more or less obscure relation of occupations or industrial conditions to disease and mortality. Every specialized investigation results in new discoveries and the recognition of heretofore unknown predisposing conditions more or less inherent in industrial processes indispensable to the welfare of the people. There is hardly an industry in which some minor ailments cannot be found as a peculiar consequence of the processes of manufacture, which often require only to be understood to provide a convenient means for their improvement or the complete elimination of the hazard by changes more or less radical. Such investigations, for illustration, as have been made by Kober and Hayhurst of processes involving exposure to carbon bisulphid and other injurious conditions in the India rubber industry, and by T. S. Lee on diseases of the blood, circulatory system and kidneys, are evidence of the complexity of the problem of occupational injuries and the extreme care necessary in their precise diagnosis with reference to legal considerations of liability for compensatory damages in the event of their occurrence in conjunction with industrial or occupational processes and conditions.

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[1] Hoffman, Frederick L.: "Facts and Fallacies of Social Insurance," National Civic Federation, Jan. 22, 1917.

The economic burden resulting from occupational diseases should rest directly and exclusively on the industries concerned. Such calculations as have been made seem to justify the conclusion that the expense of liberal compensation would not be serious with the possible exception of a few industries. Regardless of whether the risk is material or not, there are no reasons in social justice why workmen injured by industrial diseases should not be compensated in the same manner as if injured in consequence of industrial accidents. The elimination of any and every form of social injustice is of the first importance in rational labor legislation. The neglect to provide for such compensation in modern workmen's compensation laws is as regrettable as it is seemingly unnecessary. The Supreme Court of the state of Ohio, in a learned discourse, directs attention to the fact that if the legislature had intended to provide for such compensation it could easily have done so, since the facts regarding occupational diseases were a matter of common knowledge. To expect a solution of a difficult problem by means of a judicial interpretation of an otherwise precise statutory requirement is wrongfully to impose on the court a burden which rests primarily on the legislature itself. It is not difficult to arrive at a reasonable compromise regarding a satisfactory common sense definition of occupational diseases in the sense of occupational injuries as provided for under the Massachusetts Workmen's Compensation Act. Unquestionably, the problem of precise definition in many cases is a serious one, but an increasing amount of experience is being had which has made the practical handling of such cases a comparatively easy matter where the intent of the law itself is thoroughly well understood. Such a case, for illustration, is the one in which a group of workmen, incapacitated by typhoid fever contracted as the result of a polluted water supply furnished by the employer, recovered compensatory damages without difficulty, and rightly so, for a workman cannot possibly protect himself against the risk of a polluted water supply, the safeguarding of which rests primarily on the employer and the community. In a broader sense, however, the occurrence of obviously preventable diseases among workmen in the course of their employment is a matter of community responsibility, suggestive of the urgency of a thoroughly well qualified local public health service and an equally thorough and efficient system or method of industrial inspections. While much progress has been made in this direction, there are practically unlimited opportunities for further improvements.

The first essential requirement is that all occupational diseases shall be promptly reported to the local or the state board of health. Each and every case so reported should be immediately investigated for the purpose of ascertaining the causative factors or conditions responsible for the occurrence. By prompt action and the introduction of preventive measures the occurrence of occupational diseases can be very materially reduced. It is the duty of every physician to assist the state to the fullest possible extent in this direction, and it is an antiquated point of view that the physician in private practice should not be called on to make reports in sufficient detail to be of real value to the sanitary authorities. The legal relations of the physician to the community, and the industries from which it derives its support, are of the first importance, and their efficient discharge is a prerequisite for the attainment of a satisfactory standard of health and life. Neglect to report a case of occupational anthrax is as serious an offense on the part of the physician, as failure to report a case of scarlet fever, diphtheria, or smallpox. Failures to report cases of lead poisoning, or mercurial poisoning are perhaps less serious, but nevertheless a wrongful disregard of an obvious legal obligation on the part of the physician toward the community. As yet, however, the reporting of occupational diseases is quite unsatisfactory even in the states in which decided progress has been made in this direction. Frequently the failure to report is because of the ignorance or incompetence of the attending physician. Occupational and industrial conditions are deserving of more thoughtful consideration as a possible diagnostic factor, frequently obscure but often readily ascertainable. Time and again the course of treatment requires to be changed on the basis of known occupational conditions, and frequently the prognosis is materially improved in consequence. Many perplexing medical problems become simplified when occupational hazards are taken into account in their possible relation to more or less doubtful pathological evidence. On the continent of Europe, and during recent years in England, largely because of the inclusion of compensation for scheduled occupational diseases under the Workmen's Compensation Act of 1906, the science of industrial medicine has assumed considerable proportions. In the United States thus far, to the contrary, there have been apathy, indifference and neglect. Most of the textbooks on industrial medicine, malingering, etc., are by foreign authors, and many of the conclusions are inapplicable to American conditions. The reporting of occupational diseases on the continent of Europe and in England is much more satisfactory and complete than in this country, and the first concrete suggestion is that, on the part of the state, the reporting of such diseases should be made compulsory and that the laws with reference thereto should be rigorously enforced, while on the part of the practicing physician there should be developed a sense of active and intelligent cooperation, so that the best results may be secured, to the truly enormous advantage of those employed in industries subject to the risk of occupational diseases.

A second requirement is the more frequent reporting of interesting cases of occupational diseases, with regard to which the American medical literature at the present time is of very limited extent. Even diseases of relatively common occurrence are deserving of much more extended consideration than is actually the case. Obscure affections may constitute a notable addition to medical knowledge when presented in sufficient detail with reference to the patient's occupation, for the critical consideration of the medical profession at large. Such a disease, for illustration, as miners' nystagmus is quite probably of fairly common occurrence in certain coal mines of this country in which the use of safety lamps is compulsory. Painstaking attention to the well-known symptoms of nystagmus would reveal the occurrence of such cases and suggest methods and means for the alleviation of needless suffering, and medical or surgical interference at a time when such action would be productive of good results. The disease is of relatively common occurrence in the coal mines of England and Westphalia, but heretofore the subject has not attracted much attention in this country.[2] Among other promising fields of special inquiry, attention may be directed to the admirable volume by Dr. R. Prosser White, on Occupational Affections of the Skin, which includes such widely varying pathological conditions as nasal ulcers, dermatoconioses, drysalters' itch, mercurous nitrate dermatitis, photographers' dermatitis, electroplaters' dermatitis, butchers' pemphigus, etc., etc. Even more suggestive is the elaborate treatise on industrial poisoning from fumes, gases and poisons of manufacturing processes, by Dr. J. Rambousek, translated by Thomas M. Legge, M.D., chief inspector of factories and joint author of Lead Poisoning and Lead Absorption. This work includes such widely varying industrial processes as the manufacture of illuminating gas, the risk at coke ovens, the manufacture of electric accumulators, the dangers of ferrosilicon, hydrochloric acid, and soda industries, manufacture of nitric acid, artificial manures, etc., etc. A truly vast field of medical research remains unexplored at the present time. The medical neglect in this field is so much more deplorable because of the fact that most of the discoveries can be applied to such immediate practical advantage in the prevention of disease occurrence and the reduction of sickness and labor loss in industry. Each and every scientific contribution to the study of occupational diseases through the medical periodical press constitutes as genuine a service to the progress of medicine as the successful practice of medicine as a healing art. The second concrete suggestion is, therefore, that physicians, whether connected with industrial establishments or not, concern themselves in more detail with the medical aspects of hazardous employments, and that they make the results of their observations a matter of record by contributing the required information to the proceedings of medical societies or otherwise. It may be said in this connection that there is gratifying evidence of an aroused interest in this subject, and that during recent years many articles of scientific and permanent value have been published which, in course of time, will form the basis for a new science of the diseases of occupation and vocational hygiene.

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[2] See Bulletin No. 93 of the U. S. Bureau of Mines, on Miners' Nystagmus.

Among other urgent matters demanding attention at the present time is the perfection of a list of at least the more important or readily cognizable occupational diseases. When the British Workmen's Compensation Act of 1906 went into force only a small number of diseases were specifically scheduled at the outset, but this number has been increased by additions, chiefly on the basis of specialized expert investigations. The British list of specific diseases for which compensation is required to be paid is, however, still too limited for practical purposes in conformity to modern conceptions of rational labor legislation. A much more comprehensive list has been prepared by the Workmen's Compensation Service Bureau, enumerating not far from a hundred occupational injuries through poisonous substances, dust, parasites, microorganisms, fatigue, strain, excessive light and heat, friction, nerve affections, compressed air, etc. The list is amplified by brief explanatory remarks of exceptional practical value to the general practitioner more or less unfamiliar with the highly specialized aspects of industrial hygiene and occupational disease prevention and control. The list requires, of course, to be materially improved before it can be said to conform to modern requirements in all important matters of detail. The required improvement, however, in a large measure, depends on the active cooperation of the medical profession, especially in the direction of obscure occupational affections, which, for obvious reasons, may be of considerable scientific and practical interest.

Thus far there has not been a thorough and critical analysis of British workmen's compensation experience, which now extends over more than a decade. Such an investigation, if amplified by the analysis of a large number of court decisions governing borderland cases, would unquestionably broaden the field of medical practice and prove suggestive of numerous intensive studies, which are most urgently required. The subject of hernia, among others, is one which suggests itself for much more extended consideration than heretofore. The relative frequency of hernia, without reference to occupational effects, has not been precisely determined with a due regard to age and sex. Among the exciting causes in hernia, according to W. J. Greer,[3] are "sudden effort and strain. A laborious occupation may, by reason of its requiring severe and sudden muscular effort, thereby producing sudden increase in the intra-abdominal tension, cause the immediate occurrence of a hernia. That such a development may take place, and that rupture of the walls of the canal in the most common form of hernia, the inguinal, does occur, has been repeatedly verified by operation and by necropsy. Effort, strain, etc., may act in another way than in suddenly producing a hernia. Frequently repeated strains may produce muscular weakness, and consequently less ability to resist even slight increase in the intra-abdominal pressure. A moment arrives during which this increased pressure acts, the result being that the gut comes by the way of least resistance. This event may be coincident with straining at stool, coughing, sneezing, vomiting, etc., and also with effort or strain at work; these latter, while they may be the actual determining cause of the appearance of the hernia, may also be themselves the frequently repeated strains which produce the necessary muscular debility and yielding of the parts and thus gradually prepare for the final effort which renders the hernia apparent."

This extract is sufficient for the present purpose, to emphasize the very complex nature of this affliction, which is often wrongfully attributed to occupational strains, when, as a matter of fact, it is the resultant effect of normal causes. From a workmen's compensation point of view, hernia belongs to the borderland cases, which often preclude an entirely conclusive judgment as to whether the occurrence is within the category of normal diseases or is the resultant of occupational injuries more or less within a broad definition of industrial accidents. Intensive research regarding hernia in its relation to industry is urgently required as a more satisfactory basic understanding of the medicolegal aspects of this affliction in its relation to workmen's compensation for industrial accidents or industrial diseases. An interesting recent contribution to the subject is an editorial in the *Boston Medical and Surgical Journal,* with reference to a decision of the Massachusetts Supreme Court, according to which a workman in the Arlington Mills at Lawrence developed a hernia because of heavy lifting shortly before closing time. It is said that "Disregarding the signs displayed in the room where he was employed setting forth that two physicians were engaged to attend injured employees, and that the bills of no other physicians would be paid, and stating later that he did not know of these rules, the man went home and sent for his own physician, being in considerable pain. The following Monday he tried to telephone to his foreman in the mill, but was unsuccessful in talking with him. He, however, left word at the mill office that he had received an injury and was going to be operated on, on advice of his physician, who feared strangulation of the hernia." The resulting litigation concerns chiefly the question of compensation, the Industrial Accident Board rendering a decision to the effect that the employee was justified in calling his own physician for treatment on account of an acute painful and dangerous condition. The Supreme Court decision, however, was to the contrary, holding that it had not been the intention of the legislature in passing the act to give the employee the privilege or right of selecting his own physician at the expense of the insurer and that therefore the employee was not entitled to relief.

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[3] Greer, W. J.: "Industrial Diseases and Accidents."

During the period of readjustment from one legal system to another, such complications are unavoidable. The employee cannot be expected to understand thoroughly the intricate workings of a new system of precise legal procedure in connection with matters which, to him, may be more or less in the nature of remote contingencies. Industrial accident boards also are confronted by serious practical difficulties in rendering a perfectly fair or reasonable decision in connection with borderland cases, which, from their legal or medical point of view may depend on evidence of more or less doubtful intrinsic value. Such a case, for illustration, was decided in 1916, in the state of Connecticut. An employee who sustained an injury in the course of his employment worked for some time after, when he became incapacitated and was found to suffer from an impacted fracture of the hip, the bones being so forced together that they partially supported each other. Some months subsequent to his hospital treatment he developed tuberculosis, and it was held by the Workmen's Compensation Commissioner that "the tuberculosis was latent in his system and had been brought to the surface by the accident, and compensation therefore was awarded." Another interesting case was decided by the Industrial Board of Illinois, in which an employee, in 1915, while piling lumber claimed to have heard something snap in his left shoulder, which caused him severe pain, but the foreman made light of the injury and the employee went back to work, at which he continued for some months, when a Roentgen ray revealed no injury, but a subsequent examination indicated a tubercular infection of the shoulder-joint, secondary to a tuberculosis of the left lung "brought on by the traumatism to the left shoulder in March, 1915." The board therefore held that the employee was totally and permanently disabled, and that this condition was caused by the injury sustained. In these and many similar cases the disease requiring consideration was the resultant condition of a previous accident, which, of course, is quite a different state of facts and involves other principles of law than occupational and industrial diseases in the more restricted sense of the term. The cases, however, are of interest as indicating the urgency and importance of more qualified scientific consideration than has heretofore been the case.

Among the diseases of the utmost importance to employers and employees is pulmonary tuberculosis, or, in the more restricted sense, fibroid phthisis, which frequently develops in consequence of continuous and considerable exposure to industrial dust. The medical diagnosis in fibroid phthisis is frequently difficult and often long delayed, since it is not a true form of pulmonary tuberculosis, although, as a general rule, a true tuberculosis develops in course of time and terminates in a rapidly fatal form. Well-known practical illustrations of this disease are miners' phthisis, which is of relatively common occurrence in dry, dusty mines such as those of the Whitwaters Rand, South Africa; certain zinc and lead mines of southwest Missouri, and certain copper mines of Montana. The experience which has been had with this disease in South Africa has resulted in a number of exceptionally valuable scientific investigations, of which the most important and conclusive has only very recently been issued. The most useful general discussion of the subject of dust phthisis is to be found in the Milroy lectures for 1915, by Dr. Edgar L. Collis, aside from the classical contributions by Sir Thomas Oliver in his treatise on occupational diseases, Parliamentary reports, etc. It is most regrettable that, regardless of the thoroughly well understood menace of industrial dust, so little should have been done in the direction of effective prevention, and the reduction in the mortality of the dusty trades has not been proportionate to the existing knowledge regarding their extreme injuriousness irrespective of the nature of the dust or its mechanical and chemical properties. It is, however, much to the credit of the United States Bureau of Labor Statistics that the existing statistical and other data on the subject should have been made public and available for the more scientific study of this exceptionally important aspect of occupational mortality in general.

In curious contrast as an occupational disease problem, are the conditions in the cement industry. Apparently, the available evidence is quite conclusive that cement dust is not a seriously predisposing cause or condition favorable to the development of pulmonary tuberculosis. The efforts which are being made by the Portland Cement Association, under the direction of its manager, Mr. Robert Brinton Hill, to ascertain the true state of facts, are deserving of special appreciation. All of the investigations which have thus far been made seem to prove conclusively that the inhalation of cement dust, even in considerable quantities, is not an underlying cause, or obviously predisposing condition, to the development of either fibroid phthisis, or pulmonary phthisis, in the broader sense of the term. To the extent that the facts are accurately ascertained the conclusions become more trustworthy and applicable to the solution of medical and labor problems of considerable practical importance to those more or less directly concerned. If it had not been for the scientific research work of the Riverside Cement Company of California, it is quite probable that the proposed law providing for the use of dust-proof cement containers would have been enacted, to the serious detriment of the industry and those employed therein. Each and every industry more or less injurious to health owes it to its employees, as well as to itself, that the true state of facts should be ascertained with scientific impartiality and conclusiveness, so that the required remedial measures may be employed, with the practical certainty that existing hazards will be reduced to a minimum.

It is gratifying to note that the University of Pennsylvania has initiated an occupational disease clinic, much after the manner as this has been done at the Massachusetts General Hospital, and through the cooperation of the Board of Health of the City of New York and the American Museum of Safety under the liberal provisions of the Harriman Fund. These are the beginnings of a promising future when every dispensary and hospital will give consideration to the more trustworthy diagnosis and more qualified treatment of occupational diseases. Our medical schools are as yet far from having provided the proper facilities for teaching courses in industrial hygiene, but through the liberality and broad-minded attitude of the Rockefeller Foundation a sufficient fund has been provided for the inauguration of a school of instruction in public health requirements as an integral part of Johns Hopkins University. Courses in industrial hygiene should be of fundamental importance, and not secondary or subsidiary to teaching courses in general medicine. With the growth of workmen's compensation a decided tendency toward malingering, or feigned diseases has been developed, which is suggestive of the need of more specialized teaching methods, particularly in the field of the so-called traumatic neuroses. The work which has been done in this direction by Dr. Tom A. Williams of Washington deserves to be better known and more generally applied. All forms of malingering, whether for military or industrial purposes, are a menace to the best interests of the nation, not only because of the needlessly increased economic burdens, but even more so because of the obvious immorality of a procedure by which one person obtains a wrongful advantage at the cost of the many. It is therefore of material importance that workmen's compensation acts should not give inducement to malingering or imposition, and that those found guilty of such practices should suffer drastic punishment to the full extent of the law.

Qualified opinion is divided as regards the best method of procedure in the making of statutory provision for the compensation of industrial diseases. The Massachusetts Act unquestionably has been of substantial benefit to injured workmen, who, in most of the other states, would have been without legal redress. The aggregate cost under the act has been relatively small, but the amount of pecuniary relief provided must have been of substantial value to those concerned. After all, it is primarily a question of social justice, and the methods or means by which social justice is avoided are of secondary importance. Attention may therefore be directed to the report of the Committee on the Reporting and Prevention of Occupational Diseases and Industrial Accidents, to the twenty-sixth annual meeting of the National Conference of Commissioners on Uniform State Laws, held in the city of Chicago in 1916. The work of the committee extended over three years, and it is said in part: "Occupational diseases are closely akin to industrial accidents. The same principles largely apply to both. It is now agreed that the expense of compensating workmen for losses sustained by reason of industrial accidents should be borne by the industry. The same is equally true of occupational diseases, i. e., diseases which are a result of the employment." The principle of compensation for industrial diseases is, therefore, clearly recognized by a thoroughly well-qualified committee of legal experts reporting to an organization of recognized national standing. The viewpoint of the committee, is, therefore, of exceptional interest, it being said that the committee "believes that the adoption of a proper, uniform law, providing for compensation for industrial diseases, will have considerable effect in reducing the disability resulting from such diseases. There is no doubt that such disability can be considerably diminished if employers and workmen coöperate to that end." The committee, therefore, submitted the draft of an act following in broad outlines the English Act, but with quite different provisions as to insurance. The fundamental principle is the recognition of specified occupational diseases, and the English list of twenty-eight such diseases is made a part of the proposed act, which, therefore, departs essentially from the principle adopted in the Massachusetts Act. It is provided, however, that "the Industrial Accident Board shall, from time to time, suggest to the legislature such changes in said schedule of occupational diseases as it shall find are desirable." Since the English Act excludes industrial phthisis, it is self-evident that the most important industrial disease, within a broad definition of the term, remains unprovided for. As a safeguard against wrongful claims for compensation as an expense on employers reasonably assured that the disease was not contracted during a more or less limited period of employment of the affected workman, it is provided in the proposed act that "If the disease is of such a nature as to be contracted by gradual process any other employers who, during the said twelve months, employed the workman in any process to the nature of which the disease was due, shall be liable to the workman for their respective pro rata shares of the compensation due him, such pro rata shares to be determined in the proceedings for settling the amount of the compensation, having regard to the respective lengths of such employment and the rates of wages in each." It is further provided that "the employer to whom notices of the death or disability is to be given shall be the employer who last employed the workman during the said twelve months in the process to the nature of which the disease was due, and the notices may be given notwithstanding that the workman had left his employment before the disease manifested itself."

These observations are sufficient for the present purpose of emphasizing the practical importance of the subject, and the ethical urgency of the adoption of effective laws adequately safeguarding the interests of the workmen concerned. Further investigation no doubt would be desirable, and a careful reconsideration of the legal principles involved might prove advantageous, but in view of the apparently satisfactory experience which has been had in Massachusetts, it would seem that the broad principles of action adopted by that state may safely, for a time at least, guide other states. But if more conservative action seems advisable, the uniform act recommended by the special committee of the National Conference of Commissioners on Uniform State Laws would suggest itself as a satisfactory substitute.

As the result of workmen's compensation legislation a very material reduction has been brought about in the frequency occurrence of fatal and serious industrial accidents. Conclusive evidence to this effect was presented in my address contributed to the proceedings of the National Safety Council, on "Achievements and Possibilities of Accident Prevention in American Industries." The reduction in the frequency of serious industrial accidents, therefore, suggests equally far-reaching possibilities in the attainable reduction of industrial diseases. It is true that progress is being made in this direction without compensation, but as an aid in the effort at prevention and as a matter of social justice, those who are injured in the course of their employment should receive liberal compensatory damages for the loss in working time or earning power as the result of hazards inherent in the occupations or industries followed. In its final analysis, the subject of occupational diseases is essentially one of community responsibility and of the drastic enforcement of rational health and labor laws. However much may be achieved in this direction without statutory provision for compensation on account of such diseases, it is no longer a debatable question but that such "compensation should be paid to those injured in the course of their employment, in conformity to precisely the same ethical and legal principles which govern in the compensation of industrial accidents within a more restricted sense of the term."

Chairman Patterson: I am sure that you were all interested in hearing from Dr. Hoffman. In Philadelphia they have established an occupational disease clinic in charge of Dr. Stengel of the University of Pennsylvania. In cooperation with this department Dr. Stengel has devoted many of his valuable hours to this subject and is doing a wonderful work in Philadelphia, and it is my hope that this session of the General Assembly of Pennsylvania will give sufficient funds to enable us to establish these clinics everywhere throughout the state of Pennsylvania. I take great pleasure in introducing to you Dr. Stengel, who will open the discussion on Dr. Hoffman's paper.

DISCUSSION

Dr. Alfred Stengel, Professor of Medicine, University of Pennsylvania, Philadelphia: Gentlemen of the Conference, there is very little to say about any topic that Dr. Hoffman undertakes to present, and the usual rule holds today. What little I can add is of very minor importance, but there is a great deal that I might say in commendation of the very valuable address he has made to us. I think it is very apparent from what he said, and this is what has impressed me most of all in relation to the question of health insurance, that we are not in a position to undertake anything more than tentative legislation until we know more about what occupational disease is. It was for this reason, at least for this reason mainly, that I became interested in the establishment of an occupational disease clinic in which I was very fortunate in being able to receive the active cooperation of the Department of Labor and Industry. We made a joint arrangement to conduct the clinic in association with the department here at Harrisburg. Up to this time we have been interested mainly in making a general survey of the field that we hope to cultivate. At the request of the department here, and because of their need of information to guide them in making certain rulings regarding that industry, we first took up the study of tobacco workers. Dr. Miller has completed a study of 400 workmen in the cigar factories and other tobacco works in Philadelphia. He has also undertaken, with two colleagues not immediately associated with the clinic, a study of the lungs of workmen from potteries, cement works, and some of the textile industries.

I want to say in passing that, to me, one of the most gratifying things in connection with this study was the attitude of the employers of labor. One of these employers, at his own expense, has sent the men from his works a considerable distance to Philadelphia, and has defrayed all the ordinary expense. We have paid the expense of the study itself. Another, a cement worker in this state, within the last few days voluntarily offered to send any number of men from his works to us for study, he paying the expenses and paying for the time of the men while they were away from the works. We met with an almost equally generous cooperative spirit on the part of other industrial concerns.

I may say in advance of their publication, that these studies have led to some very interesting conclusions in the matter of the effect of the different forms of dust. In a large measure these are in correspondence with what Dr. Hoffman has said to you. There is a great difference in the effect of dust on pulmonary tissue, and particularly some of the conclusions that have been heretofore accepted as established regarding fiber dust or organic dust appear to require very radical revision.

Now these are some of the sorts of things that we have undertaken, aside from the study of individual cases. It has been a matter of interest to us in our teaching capacity to find certain very interesting cases for presentation to the students and I may say in passing that it is my purpose, as the head of my department, next year to introduce as an essential part of that teaching, regular instruction in industrial disease. I have no doubt that this will be made a comprehensive course, although I have not yet discussed it in cooperation with my surgical associates.

Dr. Hoffman has brought out very clearly that industrial disease is, essentially speaking, looking at it from a broad point of view, an industrial trauma, and does not really differ from industrial accidents. The practical distinction of course is that the industrial accident dates precisely from a certain event and therefore can be determined without any difficulty. Now how to determine the proper claims for remuneration for damage on the part of those who suffer illness in occupations is the problem that is before us. I do not believe it is reached by such an act as has been proposed by the commission that has suggested legislation to so many of the states. However much we may become interested in industrial or occupational disease we must not forget that occupation does not constitute the totality of the cause of disease. Various other important factors must be considered in connection with occupation. It would be as unjust to assess on the industries of the commonwealth all or most of the responsibility for disease as it is and has been unjust that the workman should receive no redress or compensation for diseases manifestly the result of his work. I am inclined to think, as Dr. Hoffman has said, that the Massachusetts plan meets the condition. As I interpret that plan it means that the eventual determination of the propriety of compensation rests with a commission and I think that such a commission should keep before them some such scheme as the English system of classifying diseases, to which additions could be made and from which they could depart if desirable. That lead poisoning is a cause of disease, that anthrax, mercurial poisoning, and certain diseases attendant on the manufacture of explosives are the result of industrial conditions, is very clear; but to embody these diseases in a statute would be undesirable because it leaves so large a group or list not mentioned and therefore presumptively ignored; whereas to leave with a commission or such a department as our Department of Labor and Industry, which has the entire confidence of the community, the power of determination and to allow it to make up tentative lists would infinitely clear the ground and relieve industry of a very unjust burden and assessment.

I myself see no fundamental difference between industrial disease and accident, but there are practical difficulties that cannot be surmounted until we have more extended information regarding the rôle of occupation in various alleged industrial diseases. Of course the introduction of methods of safety, or safety devices to prevent accident, has, as has been pointed out to you, done an enormous good; and it would do an infinitely greater amount of good if some form of legislation looking toward compensation for disease could be placed on our statutes, because it would at once speed up all the machinery of the commonwealth, that of the medical profession, the industries, labor organizations, and the public generally in the matter of health preservation. This is the ultimate good that will come from this sort of legislation. In the end the independence of individuals under our scheme of government is not compatible with schemes of legal enactment that have for their purpose universal health insurance. Some steps in this direction may, however, be taken, such as assessment of damages where health requirements, comparable to safety devices against accident had not been fulfilled. On the other hand such assessment might be invalidated by neglect, on the part of individuals, of proper regulations. In the present stages of knowledge it would seem to me unwise to ignore the element of personal neglect in the case of presumed industrial disease. Some such preliminary plan of legislation appears to me the most reasonable outcome of the present agitation in favor of health insurance. In the meantime what we need and what any commission established here or elsewhere will need, is an accurate study on the part of the medical profession, and other agencies, especially medical institutions and hospitals, of what constitutes occupational disease. Here is the crux of the whole matter when you come down to the final analysis of it, and this is the field which I conceive it to be my own personal duty to enter at this time, and to leave the matter of eventual legislation to some kind of conference between physicians, legislators, those in charge of industries, and those who represent the laboring man's point of view.

Chairman Patterson: In this connection I might add that Dr. Meeker, Commissioner of Labor Statistics of the United States Bureau of Labor, is at this time engaged in the revision of Bulletin 101, which deals entirely with the subject of industrial poisons. We have here in America a great many new industrial poisons, some of which have been the result of the manufacture in America for the first time of dyestuffs, and material for explosives, which in the past were entirely grouped in Europe, and Dr. Meeker has asked me to request that every member of the medical profession who is here will aid him in his efforts to get up a revised list of industrial poisons, classifying the poisons as to their pathological effect on the human body; and anyone who has any new information on the subject of any poison, the old as well as the new, will confer a favor by transferring that information to Dr. Royal Meeker, United States Commissioner of Labor Statistics at Washington.

As there does not seem to be any further discussion we will pass along to the next paper. It has, I believe, been truly said that very often out of evil great good can come, and certainly out of the horrible evil of the frightful war in Europe wonderful good seems to have arisen. It has been said that the greatest advance in medical science since the discovery of the use of antiseptics has followed as a result of this war. I refer to the Carrel-Dakin treatment of infected wounds. It is our great privilege today to have with us Dr. Sherman, who has just returned from an investigation of the methods of this treatment in Europe in the various hospitals close to the front. Dr. Sherman will tell us of this treatment, and has also brought with him a vast amount of information about which he will speak on the subject of The Carrel-Dakin Treatment of Infected Wounds. I take great pleasure in introducing to you Dr. William O'Neill Sherman.

THE CARREL METHOD OF WOUND STERILIZATION

ITS USE IN MILITARY, INDUSTRIAL AND CIVIL PRACTICE

WILLIAM O'NEILL SHERMAN, M.D.
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At the suggestion of the Rockefeller Institute and in cooperation with the United States Steel Corporation, the writer, representing the corporation, spent five months in England, Scotland, Belgium and France, studying the various methods of wound treatment.

The treatment of infected gunshot, shrapnel and shell wounds had not been radically altered since the discovery of antisepsis, until the perfection of the Carrel-Dakin technic. The experience gained during the past fifty years from civil, military and industrial surgery has contributed very little toward the combating of wound infection. The character of the wounds, together with the nature of infection and the damage to the tissues, is far greater in the present war than in previous wars. The virulence of infection surpasses anything known heretofore of wound infection. The first efforts to combat suppuration at the early outbreak of the war were woefully inefficient; malignant suppuration was very common, and all efforts to suppress it were futile.

The problem which confronted Carrel and Dakin was the same that confronted Lister; the principles laid down by both are identical. The battles in Belgium and northern France are conducted on fields that have been cultivated for centuries, the soil being enriched with the fecal material of poultry, pigs, horses, cattle and humans. The bodies and clothing of the combatants are impregnated with the mud and dust of this highly infected soil. The opportunities for bathing and the changing of clothing are most infrequent; in many cases, weeks and months elapse without change. The microorganisms present in the soil find a fertile medium in the human tissues. The organisms most frequently found are the bacillus of tetanus, the gas gangrene bacillus (*Bacillus aerogenes capsulatus* of Welch), the putrefactive organisms, streptococcus and the *Bacillus coli*. It will be seen that all these bacteria are of fecal origin. The *Staphylococcus pyogenes aureus*, which is usually found in suppurations in civil practice, is found only in the late stages of the wound. The lowered state of vitality and exhaustion due to loss of sleep, exposure, anxiety and nervous strain undoubtedly lower the general resisting powers. Many of the wounded lie where they fall, in No-man's Land, from twelve to forty-eight hours before receiving attention. The shell and bullet wounds not only cause great damage to the tissue, but they carry into the tract of the wound the virulent bacteria. The delay in bringing the wounded from the firing line is lamentable, but unfortunately, cannot be prevented. The Red Cross and stretcher squads, if exposed, are subject to fire night and day.

It was quite evident at the outbreak of the war that all wounds were infected, with the exception of those caused by high velocity bullets. The abortion and control of infection were the problems which confronted the surgeon. Carrel and Dakin began their research work at the Beaujon Hospital, Paris, in Professor Tuffier's laboratory. A research laboratory was later established at Compiegne, Oise, in conjunction with the French Military Hospital No. 21. Carrel's work was started in December, 1914, and completed in June, 1915.

Since that date the present technic, with certain modifications of Dakin's solution and technical improvements in the method, has been in constant use. The success obtained has been most striking. Carrel and Dakin experimented with two hundred or more antiseptics before the hypochlorite solution was perfected. Dakin's solution is not a panacea or "cure-all"; while it has strong bactericidal properties and is almost an ideal antiseptic solution because it is nontoxic and nonirritating. It must be used, however, with discretion and judgment.

In collaboration with Dakin,[1] Daufresne, Dehelly and Dumas, Professor Pozzi presented Carrel's first paper before the Académie de Médecine on Oct. 15, 1915. He pointed out that all wounds of war produced by shells, torpedoes, grenades, etc., were infected, and that the methods of treatment in vogue were powerless to prevent gas gangrene, septicemia and chronic suppuration.

Amputations.—Tuffier states that 80 per cent. of the amputations are due to infection, and 20 per cent. to destruction of tissue. He is confident that if Carrel's method is followed, almost all amputations due to infection can be prevented. If it is necessary to amputate for loss of substance, a chop or guillotine aperiosteal operation is the method of choice; this to be followed by Carrel's method of wound sterilization. By this procedure, a secondary closure of the flaps can be made twelve to eighteen days after amputation. There are thousands of painful stumps with osteomyelitis, spurs and sequestra in which it has been impossible to fit artificial legs. These complications are due to infection.

Where the chop amputation and Carrel method are employed, many are able to wear artificial legs four or five weeks after they have been wounded. DePage makes his own legs at LaPanne, laying great stress on the advantages of wearing artificial legs at the earliest possible moment. When necessary, lateral, anterior and posterior extension to the skin flaps will usually suffice to pull down the flaps to cover the bone completely.

There are many thousands of amputations which have incapacitated the patient for six to eighteen months because of infection; the vast majority of these could have been prevented.

Deaths.—The immediate deaths are due to trauma to some vital tissue. The failure to rescue the wounded within twenty-four to thirty-six hours has caused many deaths from shock, exposure and hemorrhage. Keogh states that 75 per cent. of the deaths that occur after the first twenty-four hours are due to infection.

Secondary Hemorrhage.—Carrel and Chutro are of the opinion that 95 to 98 per cent. of secondary hemorrhage is the result of infection. Secondary hemorrhage rarely occurs in the cases where Dakin's solution is used in the beginning, thereby aborting infection. Secondary hemorrhage occurs frequently in all hospitals where infection is rampant. Tourniquets are to be seen hanging at the bedside of many of the infected cases awaiting hemorrhage.

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[1] Carrel, Dehelly, and Dumas: Presse méd., 1916, May 8.

Carrel recognized the necessity for a specific, or a technic, which would abort infection and control suppuration. The variety of methods and treatments in use was sufficient evidence that all were uncertain and unsatisfactory. The technic as described by Sir Almroth Wright, Colonel Grey, Professor Rutherford Morrison and others have, no doubt, given better results than methods used before the war, but the fact remains that relatively few of these wounds united by first intention.

Wounds Treated with "Bipp Paste."—Rutherford Morison[2] states that wound infection has been the great curse of the war, and until recently all methods have failed to satisfy the most moderate surgical ambitions. He states that many wounds can be sterilized at once, so that the spread of infection can be checked or limited. His treatment consists of filling the wounds with a paste named "Bipp," i. e., bismuth subnitrate 1 ounce by weight, iodoform 2 ounces by weight, paraffin quantum sufficiat to make a thick paste. He claims that this dressing requires no change for days or weeks if the patient is free from pain or constitutional disturbance. The further advantages are the lessening of pain, the infrequent change of dressings, and rapid healing.

While this treatment has given better results over former methods used by Morison, all such wounds heal by second intention, with free suppuration, while the wounds treated by Carrel's method heal by first intention. The same is true with wounds treated by Wright's method and the salt packs of Colonel Grey.

Wright's Method of Wound Treatment.—"In certain cases, Wright's method has brought about better results than methods used before the war, but it neither aborts nor controls infection after it has become well established."

Moynihan[3] states: "I do not think Wright's method is applicable in the worst cases at least, for, as I have said, the condition of the soldiers who have received severe wounds, is one of exhaustion, with lowered blood pressure, cold extremities, feeble pulse and marked pallor. A few of these patients need infusion before any remedial measures can be attempted, and very many suffer from shock in greater or less degree. The introduction of saline tabloids in the wound would probably not cause any outflow of serum, and if it did, it would be a most undesirable result, for fluid cannot then be spared."

CARREL-DAKIN METHOD

There was a great need for a specific treatment that could be standardized throughout the military hospitals. It is necessary for the patient, as well as the surgeon, to understand that there should be no suppuration, and that if Carrel's method is followed, infection can be aborted or prevented. The best results are secured by the application of Dakin's solution within the first twenty-four hours. Bacteriological examinations reveal the variety of microbian flora, anaerobes and aerobes present in almost all of the wounds. They are usually small in number during the early stages and localized about the projectile, clothing or other foreign material in the wound. The infection spreads rapidly over the surface of the wound and the microbes are usually too numerous to count after the first thirty-six hours. It follows that it is of paramount importance to sterilize the wounds in the early stages, and that it becomes more difficult to effect sterilization if the microbes are allowed to spread and penetrate. All foreign material should be removed and the antiseptic agent thoroughly employed during the first twenty-four hours. It is, at times, difficult and impossible to remove all foreign material mechanically, so we must rely on some antiseptic solution which will penetrate the cavity and chemically destroy the bacteria without irritating the tissues or producing toxemia. The solution must be in constant contact with the tissues in order to bring about the destruction of the micro-organisms. Dakin's solution (technic of Daufresne) can be used so that from a surgical standpoint it sterilizes the wound. While these wounds show a very low microbian count on smear, they are not, theoretically, sterile in that a culture can be secured from 75 per cent. of the Carrel treated wounds.

The solution should be made to penetrate all the diverticula of the wound and must be renewed every two hours by installation if complete sterilization is to be obtained. It has the great advantage of being a strong antiseptic, with very slight irritating properties and can be made by a competent chemist or druggist at a minimum cost.

The original Dakin solution was prepared as follows: 140 gm. dry sodium of carbonate dissolved in 10 liters of tap water, to which 200 gm. chlorid of lime (chlorinated lime) are added and 40 gm. of boric acid.

Preparation of Dakin Solution (Technic of Daufresne) as Now in Use.—The solution of sodium hypochlorite for surgical use must be free of caustic alkali; it must only contain 0.45 to 0.50 per cent. of hypochlorite. Under 0.45 per cent. it is not active enough and above 0.50 per cent. it is irritant.

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[2] Morison: Lancet, Lond., 1916, Aug. 12.

[3] Moynihan: Brit. M. J., 1916, March 4.

With chlorid of lime (bleaching powder) having 25 per cent. of active chlorin, the quantities of necessary substances to prepare 10 liters of solution are the following: 200 gm. chlorid of lime (bleaching powder) (25 per cent. active chlorin); 100 gm. sodium carbonate dry (soda of Solway); 80 gm. sodium bicarbonate dry.

Put into a 12-liter flask the 200 gm. of chlorid of lime and 5 liters of ordinary water, shake vigorously for a few minutes and leave in contact for six to twelve hours, one night for example. (Shake until dissolved — at least until the big pieces are dissolved. Not all the pieces will dissolve, large pieces float, notice only floating pieces.) At the same time, dissolve in 5 liters of ordinary cold water the carbonate and bicarbonate of soda.

After leaving from six to twelve hours, pour the salt solution in the flask containing the macerated chlorid of lime, shake vigorously for a few minutes and leave to allow the calcium carbonate to be precipitated. In about one-half hour siphon the liquid and filter with a double paper to obtain a good, clear liquid, which should always be kept in a dark place.

Titration of Chlorid of Lime (Bleaching Powder). — Because of the variation of the products now obtained in the market, it is necessary to determine the quantity of active chlorin contained in the chlorid of lime which is to be used. This must be done in order to employ an exact calculated quantity according to its concentration.

The test is made in the following manner: Take from different parts of the jar a small quantity of bleaching powder to have a medium sample, weigh 20 gm. of it, mix as well as possible in a liter of tap water and leave in contact a few hours. Measure 10 c.c. of the clear liquid and add 20 c.c. of a 10 per cent. solution of potassium iodid, 2 c.c. of acetic acid, or, to free all hydrochloric acid, then put drop by drop into the mixture a decinormal solution of sodium hyposulphite (2.48 per cent.) until decoloration. The number *n* of cubic centimeters of hyposulphite employed, multiplied by 1,775 will give the weight N of active chlorin contained in 100 gm. of chlorid of lime.

The test must be made every time a new product is received. When the result obtained differs more or less than 25 per cent., it will be necessary to reduce or enlarge the proportion of the three products contained in the preparation. This can easily be obtained by multiplying each of the three numbers, 200, 100, 80 by the factor 25N in which N represents the weight of the active chlorin per cent. of chlorid of lime.

Titration of Dakin Solution.—Measure 10 c.c. of the solution, add 20 c.c. of potassium iodid 1:10, 2 c.c. of acetic acid and drop by drop a decinormal solution of sodium hyposulphite until decoloration. The number of cubic centimeters used multiplied by 0.03725 will give the weight of hypochlorite of soda contained in 100 c.c. of the solution.

Never heat the solution, and if in case of urgency one is obliged to resort to trituration of chlorid of lime in a mortar, only employ water, never salt solution.

Test of the Alkalinity of Dakin Solution.—To differentiate easily the solution obtained by this process from the commercial hypochlorites, pour into a glass about 20 c.c. of the solution and drop on the surface of liquid a few centigrams of phenolphthalein in powder.

The correct solution does not give any coloration, while Labarraque's solution and eau de Javelle will give an intense red color which shows in the last two solutions existence of free caustic alkali.

The stock solution should be kept in blue or brown colored bottles, well corked.

Difficulties in Making Dakin Solution. — On account of the unstableness of bleaching lime which varies in its chlorin content from 15 to 37 per cent. active chlorin, some difficulty has been encountered in making the solution.

Much of the sodium bicarbonate used today is composed largely of sodium carbonate: this is one of the causes for the difficulty of neutralizing the solution. If the solution is alkaline or caustic, it will burn the skin and irritate the tissues. It must be neutralized with sodium bicarbonate and should be frequently and thoroughly tested on account of its unstableness and tendency to become caustic.

There is a difference between the solution of Dakin as originally made and the hypochlorite solution, technic of Daufresne. Dakin's original solution contained 0.5 to 0.6 per cent. sodium hypochlorite. The solution modified by Daufresne does not contain boric acid, but contains between 0.45 and 0.50 per cent. hypochlorite; it is very important that the solution should not be over 0.50 per cent.; if it is, it will be too caustic, and if below 0.45 per cent., too weak.

Many of the so-called Dakin solutions are not prepared in accordance with the formula of the name they bear and, as a result, the solution has been condemned where some other solution has been used in the name of Dakin.

Chloramine (Boots) and Chlorazene (Abbott).— These substances are para-toluene-sodium sulphochloramid, an active antiseptic containing chemically combined chlorin, which is quite stable and nonirritating, but when brought in contact with proteins and similar cell constituents containing basic NH_2 groups, it acts as a chlorinating agent, losing its chlorin to the basic substances, and thereby asserting its antiseptic action as needed. Its advantages are its free solubility in water.

It is a very stable substance, the aqueous solutions showing no tendency to decompose after several months. It does not precipitate or coagulate proteins. It is nontoxic and nonirritating, having an intense germicidal action. While they are entirely different substances, they resemble very much the hypochlorites in many respects.

Dakin is inclined to think that the same results may be obtained with chlorazene as with the hypochlorites. The writer, however, has had no personal experience with chlorazene. The results quoted in this paper are due to the use of hypochlorites. Chlorazene will, no doubt, be found to be more satisfactory where they do not have the proper facilities for making Dakin's solution, and also in hot climates on account of its greater stability.

The Antiseptic Action of Hypochlorites.— Berthollet, a French chemist, in 1788 obtained a bleaching and disinfecting liquid by the action of chlorin on aqueous alkali; Ballard discovered hypochlorous acid in 1834. Percy, at the Javelle works near Paris in 1792, commercially made sodium hypochlorite by passing chlorin into crude potashes. The product was used as a disinfectant and was sold as eau de Javelle. Semmelweiss stamped out an epidemic of puerperal fever in Vienna in 1846 by the use of bleaching powder. The great difficulty has been that the hypochlorites in solution rapidly lose their strength by decomposition and have been too caustic for surgical use. It has been found that hypochlorous acid is a more active antiseptic than its salts. Dakin[4] set about to correct the objectionable qualities of the hypochlorite solutions. Prof. J. Lorrain Smith and Dakin worked simultaneously, each striving to prepare a satisfactory hypochlorite antiseptic which included the main properties of the hypochlorites discovered by French chemists many years before.

Lorrain Smith[5] and his associates have aimed at a more or less complete liberation of free hypochlorous acid from chlorid of lime, by the addition of an equal weight of boric acid. Smith's preparation is known as eusol: (1) 25 gm. of eupad (equal parts of commercial bleaching powder and boric acid, intimately mixed and ground in a mortar) are shaken up with 1 liter of water and allowed to stand for a few hours, then filtered through cloth or filter paper. This mixture should be kept in a closely stoppered bottle and not exposed to light. (2) To 1 liter of water, add 12.5 gm. bleaching powder, shake vigorously, then add 12.5 gm. boric acid powder and shake again. Allow to stand for some hours, preferably over night, then filter off and the clear solution is ready for use. This solution contains hypochlorous acid, 0.54 per cent.; calcium biborate, 1.28 per cent.; calcium chlorid, 0.17 per cent.; total, 1.99 per cent.

The amount of free hypochlorous acid in Dakin's mixture is smaller than in eusol (Smith's solution) and can be used continuously without irritation.

Bactericidal Properties of Hypochlorites.— Ridall,[6] using carbolic acid as a standard, expresses the germicidal power of hypochlorites as follows: Carbolic acid, 100; hypochlorites, 14,600 to 22,000.

Andrews and Orton[7] found that a suspension of *Staphylococcus pyogenes aureus* in pure distilled water was sterilized in one minute in the presence of one part hypochlorous acid in 100,000. In a suspension in broth 1 to 5,000 did not, but 1 in 3,000 did kill the staphylococcus in thirty minutes. They concluded that the activity of pure acid was greatly diminished in the presence of organic matter.

As a result of a series of exhaustive experiments, Smith states that hypochlorous acid 0.5 per cent. never completely sterilized the tissue (adult colon) when applied for thirty minutes. In that time, however, 3.2 per cent. hypochlorous acid gave complete sterilization with adult colon. In twenty-four hours, at room temperature, 0.5 per cent. hypochlorous acid did produce complete sterilization though not invariably, and even 0.25 per cent. gave this result.

In a series of bacteriological experiments, Smith, with cultures of organisms on artificial media, showed that 0.5 per cent. hypochlorous acid in every case killed the organisms with only two minutes' exposure. The organisms used were *Bacillus coli, Staphylococcus pyogenes aureus, Bacillus anthracis.* Weaker solutions of hypochlorous acid than 0.5 per cent. failed to kill anthrax spores in three minutes at room temperature; 0.5 per cent. solution killed anthrax spores as readily as the nonsporing organisms.

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[4] Dakin: Brit. M. J., 1915, August 28.

[5] Smith: Brit. M. J., 1916, July 24.

[6] Ridall-Thorpe: Dictionary of Applied Chemistry, vol. ii.

[7] Andrews and Orton: Zentralbl. f. Bakteriol., etc., 193, xxxv, 645-811.

Mode of Action of Hypochlorites. — Dakin states that he has been unable to find any evidence to support the theory that the antiseptic action of hypochlorous acid is due to its decomposition in the presence of organic matter with the liberation of oxygen. When strong hypochlorite solutions are added to animal tissues, an evolution of chlorin rather than oxygen occurs. It appears that when hypochlorites act on organic matter of bacterial or other origin, some of the NH groups of the proteins are converted into NCl groups. The products thus formed belong to the group of chloramines; these chloramines have been found to possess the same antiseptic action as the original hypochlorite — and it appears more probable that the antiseptic action of the hypochlorites is conditioned by the formation of these chloramines rather than by the decomposition with liberation of oxygen. The hypochlorites, no doubt, have a double action: direct bactericidal effect and the hyperisotonic effect, producing a flow of lymph from the surface of the wound and at the same time, having intense antiseptic properties without damage to the tissues, and entire absence of toxic absorption. Suppuration rapidly disappears, the discharge losing its fetor, takes on a serous character.

The rapid disappearance of all pus, necrotic, dead or decomposed material within five to seven days, is the most remarkable effect produced. The granulations take on a healthy glow, resembling very much the gross appearance of beefsteak; no other wounds or granulations present a similar appearance. As the infection is brought under control, the discharge becomes clean and free from odors. The question that naturally arises is, Can the same results be brought about by Carrel's technic, with antiseptics other than Dakin's solution? DePage has shown beyond any question of a doubt that certain recessions in the bacterial chart do occur, but that Dakin's solution is the only antiseptic that will keep a wound aseptic and permit suture.

To be successful, one must follow the technic of Carrel. Dakin's solution represents but 20 per cent. of the cure, and the technic of Carrel represents 80 per cent. The method is not one of drainage or multiple incisions; it is the opposite of this procedure. The success of the treatment is dependent on the thoroughness with which it is applied and the care given to the most minute details of the technic. The attending surgeon, as well as his assistants and nurses, should have a mutual understanding with reference to this treatment in order to bring about technical perfection. Much of the success of this treatment depends on the intelligence and thoroughness with which it is applied by the nursing organization; they should receive special training in the application of the technic. It is not always possible to give the treatment which is most to be desired in wounds of war, as one frequently encounters obstacles which prevent the carrying out of details.

1. *First Dressings at the Trenches, at the Advance Dressing Stations, and the First-Aid Dressing Stations.*—The area surrounding the wound should be disinfected with tincture of iodin, and an injection of Dakin's solution in the wound, if it is small or narrow, should be made. If it is wide and freely open, a gauze pack which is saturated with Dakin's solution should be applied. The prognosis is materially aided if this dressing is used.

2. *Dressing at the Military Base Hospitals or Civilian Hospitals.*—If the wounds are extensive, or conditions warrant, a general anesthetic should be administered and the operating field prepared in the usual way. A free incision and thorough exploration for foreign bodies of all wounds, should be made at the earliest possible opportunity. The foreign bodies are localized with the fluoroscope or with stereoscopic skiagrams. All bleeding points should be ligated; the shell tract should be freely opened and all devitalized tissue excised. The Carrel tubes should be carried to the bottom of the wound and gauze loosely placed between them. Before completing the final dressing, the solution can be injected in the wound to ascertain the amount of solution necessary to fill the cavity completely and whether or not it is reaching all parts.

The final dressing consists of a gauze pad saturated with Dakin's solution, over which a large pad of nonabsorbent cotton, which completely envelops the extremity, is placed. Turkish towling can be used instead of nonabsorbent gauze pads, if desired.

DESCRIPTION OF APPARATUS AND METHOD OF APPLICATION OF TUBES

To carry out accurately the Carrell technic, it is absolutely necessary to employ the special apparatus which has been designed for this purpose. Many of the failures have been due to the incompleteness of the standard equipment and an attempt to modify it.

The vessel containing the solution somewhat resembles a Kelly infusion bottle in shape, being graduated in cubic centimeters, so that the amount of solution injected in the wound can be accurately measured. The neck of the container is closed with a rubber cork through which a glass thistle is passed. The bulbous portion of the thistle is filled with sterile cotton; the thistle serves the double purpose of preventing loss of chlorin from the solution and allowing sufficient atmospheric pressure to permit a free flow of the solution from the container into the tube. The projection at the bottom of the container, to which the tube is fastened which carries the solution into the distributor, is a continuation of the bottom of the container itself and allows complete drainage from the bottle. Rubber tubing 1 centimeter outside diameter, carries the solution from the container to the distributor. A glass drip, the lumen of which is 6 mm. in diameter, is inserted in the main tube between the outlet of the container and the distributor. This drip indicates the rate and amount of solution flowing from the container. The glass distributors are made so that the inlet can easily be slipped into the rubber tubing from the container. These distributors are made in multiples, having from one to five outlets to which the Carrel tubes are attached. The outlets from the distributors should be made so as to allow the easy attachment of the Carrel tubes. The Carrel rubber tubes are approximately 15 to 25 cm. long, having a diameter of 5 mm., the inside lumen of which is 3 mm., giving a 1 mm. wall for the tube. They should be made of pure rubber so that the end of the tube can easily be tied off with either Pagenstecher linen or strong silk. Rubber tubing containing fabric or catheters will not suffice because of the difficulty in closing the end and the destructive action of the hypochlorite on the fabric.

Beginning from the distal end, a series of small holes, approximately ½ mm. in diameter, is pierced at intervals of ½ cm.; six, eight, ten or twelve perforations are usually sufficient, and are made with a specially designed punch (similar to a leather punch). Both sides of the tube are pierced with one punch; the tube is then turned on its axis to a right angle and the process alternately repeated, thus staggering the perforations. Extreme care must be exercised to remove the rubber plugs made by the punch so that there will be no obstruction to the flow of solution. These plugs can readily be removed by stretching the rubber. The number of tubes to be used must be decided by the size and depth of the wound. They should be inserted so that all parts of the wound are constantly bathed with the solution. To prevent the tubes from bunching in the wound, strips of gauze are loosely placed between them. The gauze serves the double purpose of keeping the tubes *in situ*, and retaining the solution. Gauze should never be packed tightly in the wound. A gauze compress is gently placed over the tubes and the dressing completed by covering with Turkish toweling. The dressing is fixed with a bandage, care being taken not to constrict the tubes, but fixing them to prevent displacement.

The bleaching properties of the hypochlorite rapidly destroy the cotton fabrics. In the severe cases, a large pad of nonabsorbent cotton which completely envelops the extremity can be used. Nonabsorbent cotton is used to prevent the taking up of the Dakin solution from the wound. This dressing should be, approximately, 3 cm. in thickness, and is made in various sizes and shapes.

For superficial wounds, the Carrel tubes are covered with Turkish toweling, extending from the distal end to a point just beyond the proximal perforation. These tubes remain in position without slipping over the tissues and keep the wound areas sufficiently bathed. Strips of gauze should then be placed between the Turkish toweling tubes; this tends to keep them in position and also retains the solution.

The graduated container should be elevated not more than three feet above the patient. A stopcock is placed distal to the outlet of the container. The solution should be allowed to flow into the wound by releasing the stopcock, allowing just sufficient solution to enter the wound to fill it and not overflow. The wounds are "laked" or "puddled" with the solution. Where pain is experienced, the container should be lowered; the pain is due either to pressure or the causticity of the solution.

Emphasis must be laid upon the fact that the most effective method is the intermittent instillation every two hours, day and night, and not constant irrigation. The amount of solution to be injected can be prescribed by the surgeon in charge. However, the attending nurses soon learn by experience just how much solution is necessary.

The Redressing.—The wounds should be redressed daily, every aseptic precaution should be scrupulously exercised. The hands should at no time come in contact with the wound; the entire dressing being completed with either tissue forceps or hemostats. Reinfection of a sterilized wound can easily be caused by errors of technic. The skin surrounding the wound should be thoroughly cleansed with ether which dissolves the vaselin from the skin. This is followed by a sponging of the skin with cotton, using a neutral sodium oleate solution, which is a very satisfactory cleansing solution; it is neutral and nonirritating. The wound is then gently sponged with sodium oleate solution, this being followed by a sponging with Dakin's solution. The sponging process removes the wound secretion, necrotic tissue, and other debris. The edges of the wound are protected with gauze which is saturated with vaselin. The gauze is prepared by immersing suitable lengths of No. 4 bandage gauze in yellow, liquid vaselin, which is sterilized and allowed to cool before using. By following this process, the vaselin gauze is easily applied.

The Carrel tubes are introduced in the wound, the ends attached to the distributors and the dressing completed as described. In emergency cases, dressings can be delayed two or three days, providing the instillation of the solution is kept up. It is absolutely necessary that a free and open incision be used to permit the easy introduction of the tubes and gauze in the wound.

REASON FOR FAILURES IN THE USE OF THE CARREL METHOD

It is unfortunate, but true, that all scientific advancements in the medical profession have been received with skepticism and it has taken years for them to be generally accepted. As a result of this attitude, there were but six hospitals in Europe on Sept. 1, 1916, using the Carrel method properly. The failure to recognize and put this method into practice has been the cause of tremendous loss of life, an untold number of amputations, frightful deformities, disfigurements and permanent disabilities, the vast majority of which are now beyond surgical assistance.

It has been proved beyond any question of doubt, that Carrel's method of wound sterilization with Dakin's solution, is a specific. Carrel and Dakin placed great stress upon the fact that it is necessary to spend at least two weeks in observation of the method before the details can be mastered. Failure to understand the details of the technic has been the cause of many of the unsatisfactory results. Certain individuals have condemned the method upon theoretical grounds without having made any investigation, or without understanding the first principles of the method. They do not want to believe that there is anything new; they are self-satisfied. The time is at hand when the medical profession may be held responsible for their failure to accept a scientific advance that means the saving of an enormous number of cripples—and lives.

HOW TO ABOLISH INFECTION AFTER IT HAS BEEN FULLY ESTABLISHED

Certain opponents to the Carrel method were willing to concede that infection could be aborted but were unwilling to concede its efficacy after infection had been fully established. However, Chutro, Gossa and Tuffier, in a very large series of cases, have been able to efface infection by carrying out, in detail, Carrel's principles of technic.

THE ABORTIVE TREATMENT OF INFECTED WOUNDS

Experience has shown that the infected wounds of war treated by use of tincture of iodin, Wright's solution, bichlorid of mercury, the carbolic groups, and countless other antiseptics, fail to prevent wound infection. The vast majority of deaths, amputations, disabilities, and complications are due to infection; therefore, we must control infection.

In spite of the absolute failure of all former methods to abort infection, no new method was devised that was satisfactory. The antiseptics used heretofore have been either too feebly bactericidal or too irritating and toxic for the tissues. By controlling infection at the beginning, one avoids septicemia, suppuration, and their complications. In other words, an ounce of prevention is worth a pound of cure.

It is acknowledged that appendicitis operated upon within the first twenty-four hours is usually followed by cure, but if the operation is deferred twenty-four to thirty-six hours, the end results are very uncertain. The same principles of industrial and civil surgery apply to wounds received in war. The abortive treatment, to be effective, should be started as soon as possible after the wound is received.

Chemical sterilization of a wound can only be carried out with a strong germicide which is a nontoxic and a nonirritating antiseptic. If the solution penetrates all the sinuses and diverticula, it must be renewed every two hours in order to effect complete sterilization.

SUTURE AND CICATRIZATION

If the clinical appearance of the wound and the bacteriological verification indicate that the wound may be sutured, the edges are incised and, if granulation tissue is present, it is removed and the wound sutured. Lateral incisions are made if the tension is too great, so that the edges of the wound can be brought together without tension. If there is a great loss of tissue and it is found impossible to suture, the wounds can be laced together or pulled together with adhesive plaster strips, to be followed later by plastic operation, if indicated.

Of the wounds treated at Compiegne by the Carrel method, 99 per cent. have united by first intention, with practically no reaction either along the line of incision or at the stitches. There is no drainage from the wounds—Gibson has very aptly expressed their appearance as "resembling very much the appearance of post-mortem wounds."

THE TREATMENT OF ACUTE AND CHRONIC OSTEOMYELITIS AND EPIPHYSITIS, BONE AND JOINT TUBERCULOSIS

Free incision should be made and if any necrotic tissue is present, it should be gently removed. Carrel's tubes should be introduced in the manner described and dressings applied. The first dressings will be saturated with an inky-looking discharge, making redressing necessary at the end of the first twenty-four hours. This discharge rapidly decreases and disappears entirely within a few days, the wound taking on a healthy appearance.

A Carrel tube in a sinus leading to necrotic bone will not sterilize either bone or soft tissue, but such a wound can be sterilized within fifteen to twenty-five days if it is opened freely and all parts constantly bathed with Dakin's solution.

THE TREATMENT OF COMPOUND FRACTURES WHERE AN OPERATION IS INDICATED

The use of steel plates, wire, and bone grafts in infected compound fractures has produced disastrous results. They should not be used until after the wound has been rendered aseptic. Should operation be indicated after the wound has become sterile, a steel bone plate can be used with complete closure of the wounds and the injury treated as a simple fracture. If plates and screws are used in the early stages, while the wound is being rendered aseptic, the solution will have a tendency to oxidize the foreign material, making it difficult to effect a complete closure after sterilization has been accomplished.

The Carrel method of rendering wounds aseptic in the early stages permits of early operations, such as bone grafting, plating of fractures, repair of severed nerves, and plastic operations, with minimum danger of reinfection. Many of these cases have become reinfected at the secondary operation because the original focus of infection was lighted up. Many of these operations are now being performed in from four to six weeks after receipt of the wound, where formerly operations were deferred from six to twelve months.

AUTHOR'S TECHNIC OF STERILIZATION OF THE UTERUS WITH DAKIN'S SOLUTION

The infected secundines are carefully removed, the cervix is grasped with a double tenaculum forceps, is well dilated, and a self-retaining, hard rubber pessary is inserted in the cervical canal. The pessary is carried into the cervix by an introducer which is screwed into the pessary. The dilator extends from the external os to the internal os, there being five perforations in the long axis of the dilator to permit the entrance and exit of two perforated rubber tubes which are carried into the fundus of the uterus by an introducer. The pessary contains sixteen perforations which are made in the lateral wall and communicate directly with the perforations which extend from the external to the internal orifice. The lateral walls of the pessary are corrugated so as to allow the solution to trickle along its walls; the cervix, as well as the body of the uterus, being in constant contact with Dakin solution.

Two rubber tubes, which are perforated throughout their entire uterine length, are carried into the uterus to the fundus. Through the central opening in the pessary, after the introducer has been removed, ribbon or bandage gauze is lightly carried into the uterus by a uterine packer. The gauze serves the double purpose of holding the tubes in position and also retains the solution, but should not be packed tightly into the uterus. The gauze can be removed daily, if necessary.

Rubber sheeting is attached to the external surface of the self-retaining pessary at the external os and projects from the vagina; this sheeting completely envelops the rubber tubes and the central gauze drain which emerges through the central opening of the pessary; the sheeting also protects the vagina from irritation.

The rubber tubes are attached to the glass distributor, which in turn, is attached to the container by a single rubber tube. The tubes should be changed every second or third day, if indicated.

The pessaries are made in four different sizes; as the uterus contracts, a smaller size pessary should be introduced. The vagina should be protected with yellow vaselin and if it is necessary to hold the pessary in position, the cul-de-sac can be gently packed with gauze. The Dakin solution should be injected in the uterus every hour, or every half-hour, if necessary. The amount to be injected depends upon the size of the uterus and the pathological conditions existing. Extreme care should be taken to prevent the injection of the solution through the fallopian tubes into the abdominal cavity; a large pad of absorbent cotton and gauze is applied to the vulva.

These pessaries, with certain modifications of technic, can be used for the treatment of empyema and urinary cystitis.

Ureteral catheterization will facilitate the sterilization of the bladder by keeping it free from urine, allowing the Dakin solution to bathe the bladder wall. A modification of this technic can be used for the gall bladder, where conditions are indicative of this procedure.

The basic principles of the method should be kept in mind at all times, regardless of the location of the infection.

The Carrel method is indicated in the treatment of rectal infections, fungating carcinoma, tuberculosis of the joints and bones, arthritis, cellulitis, synovitis, appendix abscess, and other localized infections. Carrel has advised against its use in the general peritoneal cavity.

Dr. Lloyd Noland reports the following cases:

Case 1.—W. E. B., white, American, male, aged 28, machinist, was admitted to Ensley Hospital, Oct. 26, 1916, at 11 p. m. Temperature was 101 F.; pulse 100; respiration 20; white blood corpuscles 28,000. Patient had been ill for eight days with intense pain in right side of abdomen, but had consulted a physician only on first day of illness and on day of admission to hospital. Physical examination showed a large mass in right iliac region with marked local rigidity. Diagnosis was appendiceal abscess.

At 8 a. m., October 27, ether anesthesia, gridiron incision was made. At least 500 c.c. of fetid pus escaped when the peritoneum was incised. A gangrenous appendix perforated near the base was found lying fairly free in the large abscess cavity and was removed. The cavity was sponged free of pus and two Carrel instillation tubes were inserted. Two silkworm gut sutures which included only skin and the external oblique were inserted, one at each end of the incision. Ten cubic centimeters of Dakin solution were instilled into each tube at two-hour intervals for the first twenty-four hours, and at three-hour intervals for the succeeding period of convalescence. On October 28, the patient's temperature dropped to normal. There was a slight elevation (100-99) on each of the two succeeding days, but from the 30th, the temperature remained normal. The abscess cavity and the abdominal incision closed rapidly, and on November 18, twenty-three days after operation, the patient returned to work.

Case 2.—C. M. B., white, American, female, aged 15, school girl, was admitted to Ensley Hospital, Nov. 16, 1916, at 11 a. m. Temperature was 101 F.; pulse 134; respiration 32; white blood corpuscles 18,000. Patient had been violently ill for five days with intense pain which began on right side, but rapidly spread over entire abdomen. The family physician had made a diagnosis of typhoid fever. Physical examination showed a greatly distended and markedly rigid abdomen. The patient's expression was anxious and all indications pointed to a general peritonitis. Diagnosis was probably perforated appendix, with general peritonitis.

At 1 p. m., November 11, under ether anesthesia, right rectus incision was made. On incision of the abdomen a large quantity of pus escaped. The parietal and visceral peritoneum showed an advanced peritonitis, with the presence of a large amount of shaggy exudate. The appendix was lying free in the abdomen, was gangrenous and perforated near the base. The appendix was removed as rapidly as possible, but with some difficulty. The abdominal cavity was sponged fairly free of pus and a counter incision was made at McBurney's point on the left side. Two cigarette drains were inserted into the pelvis on either side and, in addition, six Carrel instillation tubes were inserted, three on each side, distributed over the cavity. No closure of incisions was made. At two-hour intervals throughout the first twenty-four hours 10 c.c. of Dakin solution were instilled into each tube. From the second to the fourth day, the instillation was made at three-hour intervals. From the fourth day to the seventh day they were made at six-hour intervals.

The patient's improvement within twelve hours after operation was most marked, and within three days her temperature reached normal, where it remained. Convalescence was uninterrupted and on the twenty-seventh day, the patient was discharged from the hospital as cured, the abdominal wounds being entirely closed.

Case 3.—A. D. N., white, American, male, aged 21, craneman, was admitted to Ensley Hospital, Dec. 16, 1916, at 1 p. m. Temperature 102 F.; pulse 104; respiration 24; white blood corpuscles 20,000. Patient had been ill for five days with all symptoms of acute appendicitis but had been advised by his physician against operation. Physical examination showed a large mass in right iliac region. Diagnosis was appendiceal abscess.

At 2:30 p. m., Dec. 16, 1916, right rectus incision was made. From 400 to 500 c.c. of pus were evacuated and the appendix, which was perforated, was removed. The cavity was sponged free of pus and two Carrel instillation tubes inserted. Subsequent treatment was similar to that in Case 1. On his third day, the patient's temperature fell to normal where it remained. The closure of both abscess and incision was very rapid and on December 30, fifteen days after operation, the patient returned to work, the external wound being entirely closed.

BACTERIOLOGICAL VERIFICATION WITH REFERENCE TO THE SUTURE OF WOUNDS

DePage[8] states that the transformation which occurred in their results was very impressive and that immediate complications became more and more rare and that suppurations disappeared completely, so to speak. Bacteriological verification is a most valuable feature of Carrel's method and should be carried out, if possible.

It consists in counting the number of pus-producing microorganisms present in the wound during the stages of its evolution. A smear is prepared according to the usual methods and the number of microbes contained in the miscroscopic field, one-twelfth oil immersion, is counted. The smear taken during the first six or seven days, shows that the exudation consists of an enormous number of microbes and polymorphonuclear leukocytes. The polymorphonuclears gradually disappear after the seventh day. Small mononuclears appear in their place, the microbes decreasing at the same time. The macrophages appear after the tenth or eleventh day. At this time but few bacteria are found in the field; the bacteria are frequently incorporated by the phagocytes. DePage considers the appearance of macrophages a favorable symptom, indicating that the wound is becoming aseptic.

To follow the course of infection, a bacterial chart, resembling very much the temperature chart, has been devised by Carrel. In a general way, the bacterial curve of the wounds treated by Carrel's method followed a characteristic course. As many as one thousand microbes can be counted in a single field in virulent infections. During the course of treatment of the wounds, the chart may indicate more or less marked oscillation, but notwithstanding these oscillations, the general tendency is toward descension of the bacterial curve which arrives at zero after five to twenty-five days of treatment.

The superficial wounds are more rapidly sterilized and can usually be sutured at the end of six to ten days. The extensively infected wounds require a longer period to become aseptic; usually fifteen to twenty-five days. Extreme care should be taken to obtain smears from different parts of the wounds, and in compound fractures smears should be taken from the bone and from the different portions of the wound before suturing is attempted. Compound fractures are generally sterilized within fifteen to twenty-five days. Detached bone or necrotic tissue should be removed.

A wound that has been rendered aseptic by the Carrel method, can rapidly be reinfected by errors of technic, or if the treatment is suspended. Smears should be made every two or three days and the bacterial count should be recorded on the chart. After the bacteria have been reduced to an average of one bacterium to five fields, counting at least twenty fields to secure this average, and this result has been obtained for four or five consecutive days, suture may be accomplished empirically and union by first intention secured. The wounds should not be sutured until the area has only one bacterium to five fields. If they are sutured while there is one bacterium to one or two fields, there is a tendency toward stitch abscess. The cocci are the most important bacteria and they are usually the last to be removed from the field.

CICATRIZATION OF WOUNDS (RELATION BETWEEN THE SIZE OF A WOUND AND RATE OF ITS CICATRIZATION)

Carrel[9] showed in 1908 that there was a definite relation existing between the size of a wound and its rate of cicatrization. The rate of repair was more rapid at the beginning than at the end of cicatrization and was in direct proportion to the size of the wound area. P. Lecompte DuNoüy[10] has perfected a technic whereby the size of a wound can be accurately measured, providing that there is a proportional relation between the age of the patient, the area of the wound, and the index calculated by means of the formula.

1. $$\frac{\frac{S - S'}{S}}{t + \sqrt{T}} = i$$

2. $$S'' - S' (1 - i) (t' \sqrt{T}\, t')$$

S represents the area of the wound at the beginning of the experiment. S′ represents the area of the wound, t days later, at the time of the second observation. (We may say four days in order that the area cicatrized S—S′ may be of sufficient size.) t represents the time elapsed between the first two observations, S and S′ in days. T represents the age of the wound from the time of the first observation S. Therefore, in the formula 1. T=t, and practically t=t′=4 days. t′ represents the time between the last observation S′ and the time of the theoretical surface S'' of the wound. i is a constant coefficient characterizing each wound.

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[8] DePage: Soc. Surg., Par., 1916, xlii, Aug. 29.

[9] Carrel, A.: J. A. M. A., 1910, iv, 2148.

[10] Carrel: P. Lecompte DuNoüy, quoted by Hartman, J. Exp. Med., 1916, xxiv, 429-450.

Thus the first equation tends to establish an index of cicatrization which is carried into the second in order to calculate the surface of the wound at a given time. It should be noticed that the best approximation is obtained when the time of t is the same as the time of t'; therefore, after two observations, three or four days apart, of a wound which heals aseptically, the area that it should have four, ten, twenty or thirty days later and the day on which it should be healed can be computed. Accidents, of course, may retard, temporarily, the progress of the phenomenon; but generally the time lost is regained by the rapid acceleration that takes place in repair.

In other words, one of these quantities may be considered a continuous function of the other two. It is necessary to take two measurements of the wound four days apart—S and S' and one no longer needs to calculate the index i by formula 1; on the other hand, it is evident that the index is purely theoretical or rather an average index expresses normal cicatrization in a normal individual and that marked differences may be observed between the index of a given individual according to his general condition and the index of the average individual of the same age.

The procedure of taking the measurements is as follows:

After the surface is thoroughly dried by antiseptic gauze or by filter paper, a sheet of thin, transparent cellophane is applied with a sponge directly over the granulations and the epithelial edge. The inner edge of the epithelium can then be clearly discerned and is even felt under the point of the wax pencil by means of which it is drawn on the cellophane. The outer edge of the pencil work corresponds to the line of union between the epithelium and the granulating surface. Two drawings are made at each examination. The outer edge of the cicatrix is also outlined. The cellophane drawings are then reproduced in ink on a sheet of paper. By means of a planimeter, the area of the wound (S) and the area of the wound and cicatrix ($S+C$) are estimated in square centimeters. The daily rate (R) of cicatrization is obtained by dividing the differences of two consecutive surfaces by the time which has elapsed between the two observations. The value of the rate of cicatrization in its relation to the area is obtained by the formula S. A curve was obtained by carrying the area, in square centimeters, in ordinates; and the time, in days, in abscissæ.

Thus it is possible to ascertain daily in square centimeters the size of the wound, the size of the cicatrix and the velocity of the process of repair. By means of this technic, the relations which exist between the size of the wound and the rate of cicatrization and the respective value of contraction and of epidermization in the process of repair, can be estimated. The curves representing the progress of cicatrization assume a geometric appearance so that the relation between the size of a wound and the rate of repair may be expressed mathematically. The regularity of cicatrization depends in a large measure, on the bacteriological condition of the wound. The more aseptic the wound, the more regular is the curve of cicatrization. After a wound is chemically sterilized, the rate of cicatrization increases.

When an aseptic or slightly infected wound is infected, the curve of cicatrization becomes horizontal or inflected upward, showing that arrest or retrogression of the repair occurs. Some of the sterile wounds may become infected while under observation.

As soon as the bacteria appear, the process of repair is retarded, and sometimes stops. However, infection when it is of short duration, has no marked disturbing influence on the curve representing the cicatrization of the wound. As soon as normal conditions are established, the progress of cicatrization is hastened. After a period of inactivity, an automatic mechanism seems to accelerate the healing progress. Cicatrization is always more rapid in the beginning than at the end of the period of repair. The absolute value of the rate of cicatrization, that is the surface lost by the wound in twenty-four hours, depends mainly on the size of the wound. Wounds of 120 to 150 square centimeters decrease to four to seven square centimeters in twenty-four hours, while the daily diminution of wounds from ten to two square centimeters is but one to two square centimeters. It is evident that the rate of repair is proportional to the size of the wound, but the rate of cicatrization is not exactly proportional to the size.

Conclusions on Wound Cicatrization.—As a result of exhaustive experiments, Carrel, Hartman, and DuNoüy arrive at the following conclusions: (1) A method for measuring the area of a wound not geometric in form, is described. (2) The rate of cicatrization of a wound is greater at the beginning than at the end of the period of repair. It depends on the area rather than on the age of the wound. There is a constant relation between the size of a wound and the rate of cicatrization; the larger the wound, the greater is the rate of cicatrization. Two wounds of different size have a tendency to become equal. (3) The rate is proportional to the area but diminishes less rapidly than the area. (4) The process of contraction is the more important factor in the repair of a wound. Epidermization completes the work of contraction; after the wound is healed, the cicatrix, as a rule, expands. (5) The curve representing the diminution of the size of an aseptic wound, while it cicatrizes, is regular and geometric. (6) The principal point consisted in determining by means of an equation, a constant, or index, characterizing each wound. The calculation had to be made for each patient, for each wound, and required two observations, four days apart.

The index having proved to be a continuous function of the size of the wound and the age of the patient of the form $S^a \times I = K$, where S is the area, I the index, *a* a decimal exponent, and K a constant, it was then possible to draw a chart by means of which the index "I" could be obtained without calculation. The advantage of the new way of determining the index is, above all, that this index is a general average, normal index and no longer an individual index. Hence, the differences between the observed rate of cicatrization of man and the normal rate may give some indication of the general state of the patient. Another advantage, is that the determination of the index is no longer controlled by the temporary accidents which may happen between the two observations of S and S′.

It may be stated that under given conditions of asepsis and dressing, the area cicatrized in a day, is directly proportional to the size of the wound, to the square root of its age, and to the relation between the rate of cicatrization and the square root of the age of the wound at the time of observation.

The cicatrization of sterile wounds may be studied in the same way as ordinary physicochemical phenomena. It is possible, therefore, to express the law of cicatrization by a mathematical equation as soon as an accurate measure of the wound can be obtained. By means of the equation, a curve is obtained which represents the theoretical evolution of the cicatrization of a wound. This curve, being an expression of what should happen on a normal wound, healing aseptically, on a normal man, is a daily point of comparison to what appears actually on the observed wound, and allows one to study, accurately, the fluctuations of cicatrization on a given individual and the action of different dressings and antiseptic substances.

Results. — DePage reports 137 sutures as follows:

a. One hundred twelve complete successes. In these cases reunion was perfect on the whole extent of the section without there being the least inflammatory reaction.

b. Twenty-three partial successes. In this category are placed two cases in which the stitches came loose, either in consequence of necrosis of the section or of too strong tension, or on account of the slight suppuration which resulted from an insufficiently established asepsis. This result instead of detracting from the value of bacteriological verification only confirms its utility.

c. Two failures. One was in the leg with exaggerated tension of the skin. This case should not have been sutured owing to tension and it was afterward treated by strips of adhesive plaster and rapidly recovered. The other failure was a fracture of the radius with a large wound and tension of the skin. It was necessary to reopen the wound the next day on account of the recurrence of infection in the soft tissues. The wound was rapidly sterilized afterwards and the open fields completely closed within a few days. The fracture was cured as if it had been a simple one.

The nature of these wounds was as follows: (*a*) 102 wounds of the soft tissues; (*b*) 6 articular wounds of the skin, of the knee, and left fibula open; 5 complete success and one partial success; (*c*) 12 wounds of amputation stumps; 10 complete successes, two partial.

In conclusion, DePage states that since July 1, 1916, they have had under treatment in their hospital 103 fractures. At the time of my visit to him at LaPanne, Aug. 20, 1916, there were 80 cases of compound fractures undergoing treatment; not one was suppurating and all were as healthy as simple fractures.

Similar results to those of DePage were secured by Dr. H. M. Lyle at the Hospital Depew, Chateau Anel, Oise.

Drs. Dehelly and Dumas[11] report the treatment of 155 wounds from shell splinter, grenade splinters, bomb and mine splinters. Wounds caused by bullets are not included in these statistics, and of these 155 wounds, 135 were closed, i. e., 84.7 per cent. Out of the 135 closed wounds, 121 closed before the twelfth day, i. e., 89.7 per cent.; 119, or 88.25 per cent., were healed up in less than 30 days. Of these 155 wounds, 25 were complicated by fractures. Of these 25 cases, 22 were closed and 18 were healed in less than thirty days. Similar results have been secured by Pozzi, Tuffier, and Uffoltz.[12]

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[11] Dehelly and Dumas: Presse méd., 1916, May 8.

Chloramin or Chlorazene Paste.—Carrel has made a number of exhaustive experiments with chloramin paste, in which sodium stearate is used as a base. This paste should only be used for superficial wounds. Considerable difficulty was experienced in securing a paste which would give up the chloramin to the tissues. The general appearance of wounds paste-treated is totally different from those treated by the solution of Dakin, but bacteriological examinations show that the results obtained are identical. The paste is used to simplify the method of dressing.

Frequently wounds are found reinfected from skin infections, so that care must be exercised to prevent contamination of the wound from this source. Every precaution should also be taken to prevent infection occurring at time of operations and dressings.

CONTRAINDICATIONS

It should never be forgotten that the solution must not be heated.

It should never be applied or used in the *eye* or intravenously, because of its hemolytic action.

It should never be used intravenously.

It should be kept in a cool place, free from exposure to light.

It should never come in contact with alcohol.

ADVANTAGES

It has been demonstrated in the treatment, which I have had the honor of describing, that the great majority of wounds can be closed by suture and without suppuration. The stay of the wounded in the hospital and period of convalescence is greatly shortened, and many now leave in four to six weeks who would have required treatment from three to six months under former methods. All complications such as atrophies, ankyloses, adhesions, septicemia, and amputations are minimized; the mortality rate is also greatly reduced.

Professor Chutro (service of Gosse) gives us this startling report, that he is now doing *one* amputation for sepsis and hemorrhage where formerly *twenty* were necessary; and there is but *one* death, where formerly there were *ten*. Many cases which were labeled "amputate on arrival" at the front, have been saved from amputation by Chutro.

These statements bear investigation, and because of their humanitarian and economic features, should be given deep consideration.

CONCLUSIONS

1. Infection can be aborted if the treatment is begun within the first twenty-four hours.
2. Suppuration, when well established, can be controlled if the focus can be reached.
3. The success of the treatment is dependent on the perfection of the Carrel technic and the acceptance of all the details.
4. The effect of Dakin's solution is entirely local; there being no danger of toxemia from absorption, regardless of the amount used.
5. Carrel's technic, using Dakin's solution, is a specific against infection of wounds.
6. Deaver's dictum, "He who drains well, does surgery well," must be revised to—"He who does Carrel well, does surgery well."

I wish to express my sincere thanks and grateful appreciation to the United States Steel Corporation and the Rockefeller Institute for their generous assistance and cooperation, making it possible for me to study, at first hand, the treatment of wounds of war; and also Dr. Carrel, Professors DePage, Pozzi, Tuffier, and Chutro for the kind interest and help which enabled me to obtain knowledge of their wound treatment. The results obtained by them speak more eloquently than words, of what is being accomplished by their efforts. I wish to take this opportunity of expressing my deep gratitude to Sir Arbuthnot Lane, Sir Berkley Moynihan, Sir Alfred Keough, Sir William Osler, and Mr. E. M. Corner, for their many courtesies.

Carnegie Building.

Chairman Patterson: I am asked to announce that there will be a meeting of the Committee on Resolutions immediately before 2 o'clock, just before the commencement of the afternoon session.

It certainly would seem that one of the most important elements in the Carrel-Dakin treatment is bacteriology and so it is a great pleasure for me to introduce to you Dr. J. S. Lawrence of Johns Hopkins University, Baltimore, who for a period of about four and a half months was on duty as bacteriologist in the hospitals of France and he will tell us about the bacteriological control of these cases.

DISCUSSION

Dr. Lawrence: Mr. Chairman, ladies and gentlemen. In just fifteen minutes I shall try to tell you how the Carrel method of treating wounds can be made of service to you; for in discussing this paper there is nothing that I can add to what Dr. Sherman has said for he has handled the subject most comprehensively. You were interested by two main thoughts: first, this type of treatment will shorten very considerably the time of disability of your wounded; second, it simplifies the dressing for the surgeon. So let me give you the technic in A, B, C order and I shall make it as simple as possible but still retain all of its important features. I shall endeavor to give it to you as we are doing it at Johns Hopkins Hospital.

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[12] Pozzi and Uffoltz: Acad. méd., Par., 1916, lxxv, April 3.

When the wound comes to you dirty and infected, give it a thorough scrubbing with soap and water. Do not be afraid to scrub, and be certain that all of the necrotic tissue and foreign bodies are removed; if necessary use a nail brush for the scrubbing. Then, if it is a flat surface wound, you are ready to apply the tubes. If, however, it is a perforating wound let the opening which is the largest be the one you choose for the application of treatment and encourage the other to close as soon as possible. Do not retain a perforating wound if it is possible to carry out the irrigation from one side. If the wound has a small surface opening but a large cavity, open the surface so that there will be free access to the depths of the wound. The formation of this bath tub effect I appreciate is contra-indicated in cases where the object is drainage but in this system the object is irrigation or laking, hence the efficiency of a tub effect.

The wound having been thus prepared we are ready for the introduction of the tubes. There is a special size of rubber tubing, about the size of a medium or small sized catheter, which is most serviceable. You cut this into lengths of 10 or 15 inches. These tubes are tied off at one end and at that end holes are punched into them by a No. 4 leather punch. The first holes, for the punch goes through and through making two holes opposite each other at the same time, are as close as possible to the tied end; the next two are about ½ inch from the first. This distance is maintained and the tube is revolved each time so that the holes are on all sides. Four or five pairs of holes are sufficient, if more are made there will not be enough force to the irrigation. A few of these tubes are not tied off nor are they punched. These are for use in narrow sinuses or at the depth of sinuses in connection with closed tubes. Place the tubes into the wound and over the surface so that when flushed every part of the wound will be irrigated. We do not wrap the tubes in toweling but in the case of a surface wound we put over them loosely, a gauze dressing saturated with Dakin's solution and the end which protrudes from the dressing is fastened with adhesive to the skin or to the dressing. Shave a space of a few inches around the wound if the surface is hairy, and always when the wound is large and the treatment will be long, cover the skin, but not the granulations, with strips of gauze about 3 inches wide steeped in sterile vaselin. Smooth these down to the skin. They have a double purpose; they keep the fluid from possibly irritating the skin and they prevent the infection of the wound by the skin coccus. Close the wound with loose bandages wet with Dakin's solution, the objcet being to give the tubes an opportunity to move about some on the surface. Every two hours each tube should be flushed with 10 or 15 c.c. of Dakin's solution; for this purpose we find most efficient the use of a glass syringe about 5 inches in length attached to a rubber bulb. We usually inject one syringe full into each tube every two hours. Thus the first dressing is made.

At the second dressing we remove the gauze with care and when the wound is completely exposed we take from the most vicious part or perhaps from several parts, a bit of serum or pus with our clean clamp, forceps or probe and spread that into a thin film on a glass slide (not a cover slip). Lay this by and go on with the dressing. First we flush each tube and if there is much pus we remove the tubes and replace clean ones. If there is no pus and the tubes flush freely we do not move them; likewise with the vaselin gauze if it is not soiled we do not move it, but all the other dressing is renewed. The glass slide can be carried home and examined at an opportune time. It should be passed through a flame two or three times to fix the film, then pour over it some methylene blue stain, dry and examine with the oil immersion lens of the microscope. The thickness of the smear may influence the count it would seem, but you will soon accustom yourself to a certain type of field where the pus cells permit a free light to pass through and where there are not too few pus cells; and there will always be plenty of such fields; even on the thickest smears they can be found on the edge of the smear. You count all of the organisms that you see, whether small round cocci or large rods. No account need be taken of the variety for, after the surgical treatment with which you started, there are no pockets left for the development of the gas bacillus, and all organisms found in wounds, so far as we can tell at present, hinder its closure. If you find many organisms in the first field, perhaps a hundred or more, look at two other fields and if these too are full, call the count infinity; but if the number is five or less examine five fields and average the count. If the average count is but one germ per field examine twenty fields in different parts of the slide. Chart these findings on chart sheets similar to temperature charts. Dress the wounds every day but do not take counts but every other day. When the count has persisted at one germ to five fields or less for six days (four counts) it is considered bacteriologically clean and any surgical proceeding that may be indicated can be done. It is this control that is necessary, for the bacteriological condition of a wound cannot be known from a clinical observation.

In some instances there may be great quantities of pus with very few germs while in another there may be no pus but myriads of organisms. Reinfection is an occasional accident, partly because we were taught a few years ago that a granulating surface cannot be reinfected. This is a sad mistake and our bacterial count control tells us of this and tells us early so that we can go after the trouble before it runs away with us. In such cases a rise in the bacterial curve is as full of significance as the rise of the pulse or temperature curve in some fever case.

This is the technic and the important parts are the proper strength of Dakin's solution, the proper arrangement of the tubes in the wound, and the bacteriological control. The last is the most important for an intelligent treatment of the wound and most especially so in large wounds. The objects gained are: first, shortened time of disability; second, lower mortality; and third, less cicatricial tissue and therefore better function.

If I have not been clear in any points I shall be glad to answer any questions you may care to ask.

Chairman Patterson: That completes the program for this morning. The Committee on Resolutions will meet at this desk promptly at 2 o'clock. Immediately on adjournment you are all requested to assemble on the front steps of the Capitol, at the main entrance, to have a group picture taken.

The meeting now stands adjourned until 2 o'clock this afternoon.

AFTERNOON SESSION, 2 P. M.

Chairman Patterson: The meeting will please come to order.

Dr. Thomas Darlington, American Iron and Steel Institute, New York: Mr. Chairman, while I should like very much to discuss the papers, that would not be in place at the present time. I have to leave before the session is entirely over, but I want to say one thing, and that is, many of us who are so busy these days find it very difficult to get to the different conferences and meetings that are being held, and sometimes we feel that it is not worth the sacrifice of the time. I want to express my gratification, coming from New York, and to say that it is well worth while to come this far to have listened to these papers, to know of the high character and the attainments of the men who have read them and of the men who have discussed the papers, and the great value of the papers themselves. I think the effects of this conference will be very far-reaching, and I want to congratulate you, Sir, and the Commissioner of Labor, and the State of Pennsylvania, on these meetings. I bring you that greeting from New York.

Chairman Patterson: Thank you very much, not only for your coming here, but for your kind words of encouragement.

In years gone by the man or woman who had the misfortune to break a leg or arm usually faced the rest of their lives with a shortened limb. Fortunately the profession has begun to awake to the possibilities of the prevention of deformity and the conservation of function. A committee of the American Surgical Association known as the Fracture Committee, has for some time been doing work in the study of how fractures can best be treated with the view of the prevention of deformity and conservation of function, and we here in the Department of Labor and Industry of the State of Pennsylvania hope, as time goes by, to be of material aid to that committee, in giving them the details and results of the fracture cases. It is a very great pleasure for me to introduce to you a man who is recognized not only in Pennsylvania, but throughout the United States, as one of the ablest surgeons in the profession, and I therefore take great pleasure in presenting Dr. Edward Martin of the University of Pennsylvania.

TREATMENT OF FRACTURES OF THE LONG BONES FROM THE VIEWPOINT OF FUNCTION

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This subject is not inapt, because it has such direct bearing on the splendid work this great organization is doing.

The treatment of fracture has for its end the firm union of bone without deformity, and restoration of complete function in the shortest possible time. These are ideals rarely attained except in the young, in whom a modeling in accordance with the physiology of the part usually corrects slight deformities, at times even those which are gross, and in whom restoration of muscular tonus and joint movement is extraordinarily rapid.

Firm union without deformity depends on perfect anatomic reduction. The latter can be determined at once by the fluoroscopic screen or in the course of hours or a day by the Roentgen ray.

The most favorable time for obtaining perfect anatomic reduction is that immediately following the injury. With each passing hour, and certainly with each passing day, reduction becomes progressively more difficult and traumatizing. Hence a fracture of a long bone is, as Walker puts it, "as much an emergency as is a perforated gastric ulcer." Neglect of one concerns function; of the other, life. Each calls for immediate treatment by an experienced man. Neither can safely be passed to the care of an untrained intern, nor postponed for hours or days to suit the convenience of a member of a visiting staff.

Fractures treated in private practice among the well-to-do often give better results than those treated in hospitals, partly because the reduction is timely. They would give still better results were this reduction always skilful.

From which it is clear that a surgeon who sets a fracture, sustained in the morning, at noon of the following day, or who telephones to his fresh (meaning by this term newly appointed) intern to set it, and who thereafter sees only casually the face of this patient, fails in his duty even as he would were he similarly to conduct himself toward a case of typhoid perforation; the result in one case being possibly an avoidable crippling, in the other an avoidable death.

Next in importance to the timeliness of reduction is the method by which it is best accomplished and the gage as to its perfection. The usually essential conditions of muscular relaxation and absence of pain reflex can be obtained only by the administration of an anesthetic, a local paralyzing one being theoretically ideal—a general relaxing one being the usual choice. Under this anesthesia, traction and manipulation of the broken bone in a position of muscular equilibrium should have their thorough and only trial, with no thought of a later and more careful effort. And should reduction adequate for union and function fail, an open method should immediately be practiced. Only once in a long series of cases have I seen the first careful and skilful effort at reduction under anesthesia bettered by later essays; this was a case of nearly transverse fracture of the mid-femoral shaft in a child of 11, the betterment being due to a change of method, i. e., the use of a Steinman pin by which strong traction could be steadily maintained.

Early reduction by traction is usually easy because, as the bone is pulled into alignment, unless locked or entangled, it naturally slips into its normal position; shortly its potential normal position is filled with inflammatory exudate.

The needful traction usually can be exerted in these promptly treated cases by pulling on the portion of the limb distal to the break, employing the hands of assistants for this purpose, or looped towels or bandages. If this traction be inadequate the Steinman pin or the ice tongue tractor driven into the end of the distal fragment enables the surgeon to apply the method at its highest efficiency, and hence feel that he has left nothing for a later trial.

It is obvious that when reduction can be accomplished only by powerful traction exerted on a bone, its maintenance will, as a rule, be dependent on a continuation of this traction, hence provision must be made for this in the subsequent dressing, even though the open method of reduction and fixation be found needful. The best proof of an adequate or of a perfect reduction is that afforded by a radiogram or a fluoroscopic examination, and since a failure adequately to reduce should imply an immediate operation, the fluoroscope is the method of choice as enabling the surgeon to determine at once his course. Schamm reports the habitual use of the fluoroscope in the military operating room at Vienna, the surgeon wearing a darkening mask, the screen of which can be raised or dropped, in accordance whether he wishes direct vision or a study of the bone shadows. Pancoast states that such an arrangement with protected and movable tube and a satisfactory table can be installed in the operating room of any hospital at an expense of about $500, and that its proper use by the surgeon, even when there is a large fracture service, is without danger, though he would advise against the employment of it by the roentgenological specialist.

The terms adequate and perfect reduction have been used advisedly; though the latter is always desirable, it is often not obtainable without operation, nor is prolonged effort with this end in view commendable, nor operation when such effort fails necessarily indicated.

In all fractures the broken surfaces must be in at least partial apposition. In the humerus neither moderate angulation nor shortening is a crippling factor, nor when its joint ends are involved is a malposition which does not mechanically limit motion of grave import, since a considerable deformity is possible without interference with function, this bone being simply a lever; the same is true of the radius and ulna, providing the process of healing does not bind these bones one to the other, in which case rotation of the forearm is inhibited. Hence, preservation of the interosseous space is, from the functional standpoint, of first importance in such injuries and should be insured by a post reduction shadowgraph.

The bones of the leg are weight-bearing levers, which should be of equal or nearly equal length; hence, from the functional standpoint, both normal length and alignment for weight bearing are of prime importance, this applying to both the shafts and the articular extremities. Moreover, a rotary deformity produces not only an awkard gait, but predisposes to disability because of the resultant incorrect transference of weight. Hence, in the lower extremity the reduction should be more accurate than in the upper.

In the absence of the fluoroscope the test of adequate reduction is afforded by inspection, by comparison of the two sides, and by feeling and measuring.

Failure adequately to reduce under anesthesia is demonstrated by (1) absence of bony crepitus on manipulation and traction, this indicating either wide overlapping, or interposition of soft parts between the fragments; (2) improper alignment shown by inspection and palpation; (3) blocked joint movement incident to displaced fragments. Such conditions call for immediate operation.

The setting of compound fracture should be more perfect than is that of the closed variety, since there is already a wound which may be enlarged. Moreover, Carrel's method of laking, with Dakin's solution, provided it be efficiently applied gives every promise of rapidly cleansing even virulently infected wounds, and enabling the surgeon, controlled by his bacteriological tests, to close later by stitches, with prompt and complete healing of the soft parts. Nor in these cases is there objection to using internal fixation, should this be needful.

A fracture dressing is meant to hold the broken ends in apposition to each other till they are firmly united. This is accomplished by position, traction, and splinting.

The usual position is one of nearly muscular equilibrium.

If the jagged ends of a transverse fracture can be locked, further traction is not needful. Otherwise the muscular tonicity will cause shortening, often angulation. This tonicity is overcome by traction. Traction should be adequate and unintermitting. An intermitting pull is nearly as bad as none at all. Traction as usually applied is inadequate, since it does not completely overcome the shortening and is intermitting, the patient always yielding to the pull if this be possible. An adequate pull is one which holds the part straight and at normal length.

The amount of needful pull varies with each individual case; it should immediately maintain position and so continue doing, being gradually lessened rather than increased. I have never seen an instance of failure to unite because of overpull.

The pull is usually by means of adhesive straps attached to the skin and running, where this is possible, four inches above the seat of fracture. The resin plaster on moleskin is the least irritating, and if it cover broad surfaces and be reinforced by narrow circular strips is adequate for from 15 to 20 pounds; in the thigh this is not enough. By pull is meant the actual pull, not the weight attached to the end of a cord which runs over a pulley. A spring balance, incorporated in the rope which makes the direct pull, gives accurate information concerning this. Adequate traction often requires a pull too great to be sustained by the straps, or to be borne by the patient whose skin is thus stretched. Under such circumstances the Steinman pin is most helpful. To the visiting surgeon, swift and casual in so far as his fracture patients are concerned, this is painless and causes no local inflammatory reaction. In reality it is usually painful, but bearably so, and in the course of from one to four weeks, occasions an inflammatory reaction in both the bone and soft parts, always on the inner side into which it was driven, not on the side of exit. There have been localized collections of pus in the soft parts, but no spreading infection.

Schamm, just back from Vienna, describes a spring clamp on the principle of a pair of ice tongs, the prongs of which seize the bone without deep penetration, the more tightly, proportionate to the pull on the spring loop of the instrument. This has been used by von Eiselsberg in many cases and is said to be unirritating and painless. It may be secured to the ends of the long bones, though in the case of the arm and forearm adequate traction usually can be secured by straps and an elastic pull or weights. In addition to adequate traction, splints are needful for the maintenance of the position which minimizes unbalanced muscular pull, for holding the reduction in so far as angulation and lateral displacement are concerned, and for fixing the joints on either side of the fracture. In fat people, splints serve no purpose other than imperfect immobilization of the part. For the upper extremity the molded plaster splints, cut to size, are the most satisfactory, the elbow fractures being reduced under anesthetic and usually dressed in forced flexion. For the lower extremity reduction and extension in the Hodgkin wire splint, or, in the case of the leg, molded plaster of Paris splints answer well, the open and infected fractures all being loop slung and suspended.

For femoral fractures moderate flexion and abduction is the position of best equilibrium; and for fractures of the neck of the bone, wide abduction and fixation by plaster of Paris, or longitudinal and lateral traction. Pinning these fractures is futile unless the patient be secured to a Bradford frame by plaster of Paris, be held immovable and have applied to his femur, pin or tongue traction, usually of something over 30 pounds.

Since the consolidation of fracture and the restoration of function are proportional to the freedom of circulation, massage and motion are indicated early, indeed at once, provided the manipulation follows the absolute rule that a helpful treatment does not hurt at the time and makes the patient feel comfortable afterward. There should be no movement of the bone ends and if manipulations involve such motion they should be omitted.

Union, which is usually demonstrable at the end of three weeks, is in rapidity inversely proportional to the severity of the trauma. It is best delayed, or indefinitely postponed, by frequently repeated efforts at more perfect reduction, practiced at intervals of a few days. It is always delayed by the open treatment, the proportion of ununited fractures following this method being much larger than that from any other. Bier's congestion and a complete change of treatment seem helpful when the delay passes the eighth week. After consolidation and the removal of dressings, deformity may develop from muscle pull or weight bearing, usually the latter; hence the patient should be kept under observation for some months following, what hospital reports cheerfully call, his cure.

And finally, it should be said that the results obtained in the treatment of fractures are in general exceedingly good; that they may perhaps be made still better, and that a step in this direction will have been accomplished when the surgeon systematically records, as is now required by Commissioner Jackson, the time elapsing between the injury and the setting of the bone, the administration of an anesthetic for this setting, the method of treatment and the functional and cosmetic ultimate result, and the filing of three Roentgen-ray pictures, one before setting, one after and one on discharge from active treatment.

Chairman Patterson: I am sure we are all indebted to Dr. Martin for his very clear interpretation of this subject. The discussion will be opened by Dr. Lowman, chief surgeon of the Cambria Steel Company, who, as we all know, has had very extensive experience in fracture cases, not only at the works but also in his practice at Johnstown.

DISCUSSION

Dr. John B. Lowman, Johnstown: I am very sorry I did not hear the first part of Dr. Martin's paper. I got here late, but I presume from what he said that it is on the reduction and proper functioning of fractures.

A few years ago in discussing the ultimate results of fractures before different societies I called attention to the length of disability and asked several surgeons what their length of disabilities were; and when discharged for work, if their patients returned to their usual occupations and had the same earning power. The majority had only the hospital record and date of discharge from the hospital. I was extremely interested in this matter, as I had kept track of the men under my care from the time they were injured until they actually went back to work at their old occupation. I was somewhat surprised to find my period of disability was greater than theirs, but this was easily accounted for by the fact that they credited the man's disability from the time of discharge at the hospital, which is incorrect. Very nearly 60 per cent. do not return, at the time of discharge from the hospital, to their usual occupation. I was very much encouraged then to find that my period of disability was not any longer than the rest.

I am glad to say, since the introduction of the fracture chart of the American Surgical Association, we will be able to get at a more clear understanding of the functional results. The first thought of the surgeon in industrial surgery is, "How can we give the man the best functional result with the least loss of earning power?" This is of vital importance in fractures. In fractured thighs, which is one of the worst injuries we have to contend with, much must be taken into consideration; the age of the patient, the proper reduction, whether by the closed or open method, and the best fixation dressing for the same. Right here I want to emphasize that in the reduction of fractures the immediate treatment and reduction has a lot to do with the functional result. I think Dr. Sherman will bear me out in this. He gets his cases early, as I do, and we reduce them as soon as possible. Therefore I want to impress on you that the immediate reduction of a fracture is the very best procedure, and should be done as soon as possible.

As to the reduction of fractures, I have tried to work out the scheme that Dr. Martin has suggested by reducing fractures under the fluoroscope. I tried to improvise a table something like the Hawley table, and I must confess, personally, I am a little bit afraid to work around such a table, as the operator is not safe in any so far built. From my experience I feel that if we were successful in getting such a table we would save many cases going to the operating room.

I think the treatment by the Carrel method, especially in compound fractures, is going to give us better results. I am an enthusiast about this. We have been using it for about three months. Of course in one hospital, the hospital of the Cambria Steel Company, we get our cases very early (compound fractures) and we do not have so many infections as we do in the city hospitals, in cases coming from out of town. This is the class of cases that the Carrel method should be used in and the results will surprise you. The technic must be carried out as described today.

I agree that in every fracture you should try to reduce it before using the open method. There are a good many methods of doing this—the Hawley table, the fluororscope, and extension apparatus.

In the treatment of any fracture it is a question of judgment. A man's age and systemic condition must be considered, and what will be the best treatment to give him a good functional result and the same earning power as before.

Chairman Patterson: Is there any further discussion on the subject of fractures?

From the Floor: May I ask that Dr. Sherman, with your permission and the permission of this body, be allowed to supplement his remarks of this morning? We heard his address and the address of the bacteriologist. Dr. Sherman knows so much about the practical working of this, I think we should all like to hear a few more words summing up the combined papers we have had.

From the Floor: May I ask Dr. Sherman also to tell us about the application of ambrine and what he uses to cleanse his burns?

Dr. Sherman: There are two remarks made which I think should be corrected; one was, as I take it, that Dakin's solution was rather low in bactericidal properties. That is quite wrong. I will quote just a few statistics to clear up the question, if there is any doubt in your mind about the bactericidal properties of Dakin's solution. It is very intensely antiseptic. Using carbolic acid as a standard, expresses the germicidal power of hypochlorites as follows: Carbolic acid, 100; hypochlorites, 14,600 to 22,000.

Andrews and Orton found that a suspension of *Staphylococcus pyogenes aureus* in pure distilled water was sterilized in one minute in the presence of one part hypochlorous acid in 100,000. In a suspension in broth 1 to 5,000 did not, but 1 in 3,000 did kill the staphylococcus in thirty minutes. They concluded that the activity of pure acid was greatly diminished in the presence of organic matter.

As a result of a series of exhaustive experiments, Smith states that hypochlorous acid 0.5 per cent. never completely sterilized the tissue (adult colon) when applied for thirty minutes. In that time, however, 3.2 per cent. hypochlorous acid gave complete sterilization with adult colon. In twenty-four hours, at room temperature, 0.5 per cent. hypochlorous acid did produce complete sterilization though not invariably, and even 0.25 per cent. gave this result.

In a series of bacteriological experiments, Smith with cultures of organisms on artificial media, showed that 0.5 per cent. hypochlorous acid in every case killed the organisms with only two minutes' exposure. The organisms used were bacillus coli, *Staphylococcus pyogenes aureus,* and *Bacillus anthracis.* Weaker solutions of hypochlorous acid than 0.5 per cent. failed to kill anthrax spores in three minutes at room temperature; 0.5 per cent. solution killed anthrax spores as readily as the nonsporing organisms.

Now there is no question about the antiseptic properties of Dakin's solution. Introduce that solution and in three or four days the pus has disappeared; certainly it destroys that pus and infection because it has these intense bactericidal properties.

There is another point on which I think you are going to be misled, and that is if you put into the wound (when I say wound, I mean a large open wound) tubes with the ends open, and fail to tie the end off, the solution is going to run down to the bottom of that wound and it is not going to come out along the track of the tube. You cannot say, "Put in six holes, eight, or twelve." It depends on the depth of the wound. If the wound is that deep, put in enough holes, that is, enough tubing to cover the entire depth of that wound. I have never yet in Carrel's hospital or DePage's, or any other hospital where the Carrel method was properly carried out, seen anything used other than the tubes that were tied off. Now I have pointed out the necessity of making these holes a certain size. The ordinary leather punch is going to fail, and the ordinary rubber tubing is going to fail. You must get this equipment, you must have a certain caliber of rubber tubing and a certain caliber of punch. The ordinary man will pass over that as of no consequence. Let me point out to you why: Take the ordinary rubber tubing, if you have the ordinary tube you cannot tie off the end of it and the hypochlorite is going to go through that tube very rapidly, and if the walls are too thick you cannot get them over the ends of the glass distributors. So the tube must be a certain caliber in its gage and a certain composition. I have seen a number of cases supposed to be using the Carrel method; it is really a crime, the abortive attempts that are being used, and called Carrel treatment. With the ordinary collapsible rubber tube, with big holes in it, the tube collapses, and the solution never goes into the wound. That is why it is so necessary to have this tubing the proper character of tubing and the same gage. When I returned I searched the country and could not find tubing suitable, and could not get the proper punch. The ordinary harness punch is no good, you have to have a special sized punch to make these holes the proper size, because if you make your holes too large your solution is all going to run out of the bottom hole. These little practical points are all necessary if you are going to do this thing and do it right and get results, and I am getting results.

What are the results? What are the standards? Everybody has always been satisfied with results. There is a certain standard of results and we will have to take the work of DePage and Carrel as standards. Briefly, the Carrel treatment in a nutshell is the introduction of Dakin's solution into a wound under sufficient pressure to carry the solution to all the recesses of the wound. Let us have, say, a large wound; the Carrel tubes must go into the different parts of the wound, and those of you who are not familiar with it, if you are afraid you have not got enough tubes in, put one or two more in to be safe. You will make no mistake by putting in a few extra. Put in the tubes and have the ends which are tied off go to the bottom of the wound as far as they can reach, and then between the tubes place in loosely, gauze which is soaked in Dakin's solution. This is done so as to prevent bunching of the tubes, so as to keep them from getting together. Your gauze serves the double purpose of holding the Dakin solution and also of keeping the tubes from being bunched. The skin should be protected with vaselined gauze. I want to point out to you also that after you have sterilized these wounds you can readily reinfect them again if you are not very, very careful in your technic and also in your dressing. Use a pair of hemostats, never touch wounds with the fingers; clean off the vaselin with ether; clean off the area surrounding the wound, cleaning from within out; follow that with a solution of sodium oleate, about 7 per cent. in strength, using neutral sodium oleate because it is nonirritant; and after it is well cleansed, sponge out the interior of the wound with sodium oleate and begin mopping out the wound with Dakin's solution. After you have well cleansed the inside and outside then cover the wound with a vaselined gauze, put in the tubes, and cover the whole with the dressing. In the hospital the bed cases should best be treated with the irrigator. It is very much simpler for the nurse, all she has to do is to walk along from one bed to the other, release the stopcock and allow sufficient fluid to flow into the wound to fill it.

Next the ambulatory case, the case going home: You follow out the technic previously described but have a single tube, a single dropper emerging from the dressing, a regular medicine dropper will do; on the outside of that have a tube about the caliber of my little finger; then give to the patient a syringe and bottle and tell him to put that syringe in the end of that rubber tube at the end of every two hours and inject in a half ounce or ounce, depending on the size of the wound. You must have a syringe to shoot it in to get it down to the bottom of the tube, especially if your perforations extend that distance. Each one of these little perforations on the tube will spread out equally. That is the idea of having these little perforations made of the same size. Carrel has given up almost in despair because he cannot get the doctors to accept these little details. They will not do it, they will modify it, do this and that and fail. It is very unfortunate that some men are too busy and have no time. Lots of men have gone around the world to see a sight and missed it; other men who have not got so much to do are too busy to do it. It is unfortunate that that is the attitude and it is going simply to delay, to delay, and delay until this work is put on its proper basis. You must also get away from the fact that this is only useful in industrial and military service. Not at all. In many operations we are reasonably sure to have pus after the operation. Some of our surgical friends say, "We never have pus, never have infection." The fellow who does not have pus and infection is not doing much surgery, or he does not know pus when he sees it. Those amateur surgeons in Rochester, Minn., have only about 50 per cent. of their wounds show infection—I mean infection to the smear and culture tube, not to the naked eye. Lots of our wounds break down and we have blood clots and everybody else has the same experience if they tell the truth. I know now why many of our skin graft operations failed in the past. We did not understand the A, B, C of this; we had failure, failure, failure, lots of them. I know why now. These wounds we used to think were sterile, that is, to the naked eye, but they were infected. You cannot tell anything about it with the naked eye. A wound that may look to you to be sterile may be infected, and a wound that may look to you to be infected may be sterile. So you cannot tell at all. With this method if you can reach the infection you can destroy it. The solution has bactericidal and antiseptic properties.

A doctor has asked something about ambrine or paraffin. If a man has been burned sufficiently to cause blisters and destroy the tissue, he has certainly destroyed all the bacteria, and why should that area be scraped and further traumatized, causing that patient undue annoyance and pain? There is no occasion for it. If the burn is dry, merely paint on this paraffin preparation either with an atomizer, that is preferable, or a brush. As soon as the paraffin reaches the burn it becomes solid, it seals out all the air, and there is no pain, practically none. Over that a very thin sheet of cotton is placed and over that another layer of this paraffin. Now the idea of using the cotton is simply to incorporate the cotton into the dressing so that it will shell right off like a cocoon. Every twenty-four hours you dress these patients, then wash off the burn with a solution of Dakin's, or whatever you wish, and dry the burned area. Dry it with an electric drier such as they use in hairdressing establishments or shoe shining parlors, by a simple blast of hot air, and the burn takes on a glazed appearance. If the paraffin comes in contact with water it is going to cause pain, so you must dry the area. After the cleansing and drying put on ambrine, a thin sheet of cotton, more ambrine, then a thick layer of cotton, and bandage it up and let it go. I want to warn you on this point, and I believe that you will find the point well borne out, and that is that I am not convinced that in a large third-degree burn, where there is extensive sloughing and absorption of toxin, that this ambrine treatment is the proper thing to use. You are locking up all that sloughing material and the patient is absorbing a lot of toxin, not from the pus, but from the destruction of the burned tissue itself. We had one case recently in which we changed from the ambrine, where there was extensive sloughing, to the Carrel method, and the general symptoms cleared up very quickly.

I believe that in the future we are going to find the middle-of-the-road course in these things, as we do in everything else. A few years ago everybody was hysterical about bone plates, and patients with fractures got bone plates whether they needed them or not. Now everybody is going crazy about bone grafts and giving them graft operations whether they need them or not. In a few years we lose our ultra-enthusiasm and come down to bedrock. I believe, in an extensive burn, for the first few days that the best treatment possible will be the ambrine treatment, until the sloughing starts, then immediately to put on the Carrel, clean up the burn, get rid of that sloughing and that toxemia, and when it is clean and the bacteria reduced, graft it. I believe that now we know when we can or cannot graft and our success in these operations is very much higher after we have sterilized the burn. Carrel told me he had been trying out, in the Rockefeller Institute, New York, for a great many years, grafting on animals and he used practically this preparation. He used a preparation of beeswax and paraffin and olive oil. After he cleansed up his wound, and grafted it he healed it up and his results were very satisfactory. He told me recently that they were now grafting the entire surface of the skin, grafting the entire surface on wounds that had been sterilized, and those wounds, of course, had very much less scar. The surprising thing about this ambrine treatment is that second-degree burns heal so rapidly and there is practically no cicatricial contraction following.

You will find this treatment is entirely opposite to the Carrel treatment. Your bacteriological chart will immediately jump up and in twenty-four hours an infinite number of bacteria appear. Whether or not the inclusion in the ambrine of certain antiseptic properties is going to improve results remains to be seen; those are all things that have to be worked out. One thing we must do, we will have to tell the truth about these things, and we have got to get right down to bedrock and tell the truth. I think that covers as much as I have to say on the Carrel treatment and on ambrine. Are there any other questions?

From the Floor: Tell us about the diameter of these rubber tubes.

Dr. Sherman: I could not get any tubes in this country, so I went to the president of one of the large rubber companies in America and implored him to please make some of this tubing, saying that I could not get it anywhere in the country. The tube has to be made by a special process and they are now turning out, I may say, 25 to 30 pounds on an average, a day. The inside caliber of the tube is 3 mm. and the walls 1 mm. thick; so that makes the outside, the transverse diameter of the tube, 5 mm. The holes of the tube are approximately 1 mm. in size and about 0.5 mm. apart. I cannot impress on you too strongly the necessity of mastering these little points and details because some of the very best men have failed utterly to work this thing out just because they would not take the time to master these little details.

From the Floor: Can you tell whether any dependence can be placed on the powder or tablets on the market for a preparation of Dakin's solution?

Dr. Sherman: I infer the gentleman has reference to chlorazene tablets, the American trade name, or the English trade name of chloramine. Chloramine and chlorazene are preparations entirely different from Dakin's solution. Chloramine is a para-toluene sodium sulphochloramide. While chloramine and chlorazene are the same in the intense bactericidal properties they possess, they do not have the penetrating properties Dakin's solution has, and all the work done in France was done with Dakin's solution and not with these tablets. While the Abbott preparation, chlorazene, is a very good antiseptic, and more stable and more reliable in many respects than Dakin's solution, it is not the same, it does not have the same penetrating and antiseptic properties. Carrel told me recently that Daufresne and his chemist had worked out a method of making Dakin's solution by electrolysis, and by adding potassium permanganate. This makes a more stable preparation. Whether or not it is going to stand up for two or three months I do not know, but at least it is an improvement on the stability of Dakin's solution; but by all means wait until these things have been proved, and use Dakin's solution first and after the other things have been proved up, certainly there is no reason why you should not use them. If you cannot get or make Dakin's solution I would unquestionably use chloraazene. There is a very good ointment with chlorazene in it, made by Abbott in this country, and for superficial wounds it is very, very good. It is a mixture of chlorazene and sodium stearate. We have used it in a number of superficial wounds and have had very gratifying results with it. Carrel also proved that they could use this chlorin base in superficial wounds and keep them free from bacteria, but these wounds have an entirely different physical appearance from the other wounds, they look pussy and dirty, they do not look fresh and healthy like the Dakin solution wounds. So, except for specific cases, I should very much prefer to use Dakin's solution.

From the Floor: Would you not put water near a burn at all?

Dr. Sherman: There is no reason why you should; you could do it harm.

From the Floor: What would you do with a miner who comes in all black and dirty?

Dr. Sherman: You mean a recent case? There is no difference between a miner and steel worker who is burned. It is all the same, all the bacteria have been destroyed by heat, charred, and destroyed. I would immediately put on this paraffin dressing. What is to be gained by putting on water? Simply because we did so before, is no reason why we should continue.

From the Floor: I should like to ask the difference, or what is the scientific principle underlying the use of paraffin as against any other element in a burn.

Dr. Sherman: I do not think there is anything; I think there is nothing specific in the ingredients of this preparation, not a thing. It is entirely mechanical, but you want something that has a low melting point, and flexibility, and to get that low melting point and flexibility you must have your physical preparation such that it will not crack but will retain its flexibility. There is nothing specific in these paraffin mixtures. I dare say that within the next month you will probably see fifty of them on the market. I have had twenty samples presented to me in the last two weeks; they all say it is just the same. It may be and you may get the same results.

Dr. J. A. Murray, Pennsylvania Coal and Coke Corporation, Patton: We have heard some admirable papers on this subject of treating infections, but I have failed yet to hear anything on preventing infections. In the mines in this country and factories we have a great many employees who are injured, and the physician or surgeon does not get them for several days after they have been injured; sometimes they come to us with disastrous cases of infection. I have seen some of them die from infection following the slightest wound. The question I think we ought to discuss more is how we are going to prevent a lot of this infection in our factories, mines, etc. I for one have been advocating the use of iodin immediately. We are training first-aid teams all over the state, in the mines, and the different kinds of factories. The question has arisen in my mind whether it would not be a good idea to have some of these well-trained first-aid men treat some of these cases with tincture of iodin. I have thought we should recommend the placing of small wooden applicators, wrapped around with absorbent cotton in glass dishes or some other containers, and sterilize them; then have in our first-aid cabinets a small bottle of tincture of iodin with a rubber stopper; let these first-aid men paint those wounds over immediately. I think that we would prevent a great deal of infection that comes to the surgeon and hospital, if there were some such method adopted. In New York State I see that out of fifteen thousand compensable cases the medical department followed up twenty-one hundred cases, examined them, and found that one sixth of all those cases were infected wounds and that a great many of them could have been prevented by the application of tincture of iodin or something of that kind immediately after the accident, or within the first fifteen or twenty minutes.

Chairman Patterson: I think, in answer to that, Dr. Bloodgood's paper, the next paper on the program, will probably answer the question and will tell you how infection can be prevented by first-aid. I think everybody here would be tremendously interested in having an opportunity of hearing from a man who has had very extensive experience in the treatment of burns. I am going to ask Dr. Hudson, from the du Pont Company, if he will not say a few words to us.

Dr. W. G. Hudson, Wilmington, Del.: I am not ready to report yet, we are just trying out the treatment.

Chairman Patterson: I think everybody would be interested in hearing in the first place what your experience has been, and in the second place your means of application. A great many men I am sure have had the trouble you have had and you can tell them how you solved it.

Dr. Hudson: Of course, we, in common with all the other great corporations, have been very much interested in the published results from the ambrine treatment. I went out to Pittsburgh to see Dr. Sherman's method and laid in a supply of the ambrine and we are using it just the same as Dr. Sherman is. The only trouble is that up to the present time we have not had enough burns to draw any conclusions. So far as we have gone I do not think there is much doubt about it being an improvement on the old treatment. The main trouble I have encountered was in getting a suitable spray to spray the paraffin, but I have overcome that by making one myself. I could not find anything on the market that would work but the one I made seems to work very well. I do not just like the idea of locking up all the scretions under the paraffin, although I followed that method from the beginning, because I wanted to get some basis of comparison. I think, however, as we go along, we will probably modify the treatment by applying a wet dressing of Dakin's solution for the first few days, and then carrying it out from there on with ambrine. The ambrine that we succeeded in obtaining so far seems to be nothing but unbleached paraffin, and I presume it is nothing except the mechanical qualities that make it valuable. It costs $5 a pound, but I do not think it will be very long until we find a substitute. I rather differ with Dr. Sherman about the skepticism that has been shown to these new treatments, in this country anyhow. I know of a large number of men who are certainly awake to both of these innovations, if you can call them that. If there was any skepticism, for instance, on the ambrine treatment of burns in France I do not think we can blame the French physicians very much for allowing it. The preparation has apparently been put forth for several years as a sort of patent medicine application for rheumatism. Now it shows up for burns. Of course, that will not prevent us from recognizing the utility of it, if it turns out to be a utility, and it certainly seems as though it were doing so. I do not think we are open to the charge of too much skepticism in these things, I think we are all awake to them and ready to welcome them with open arms.

DR. J. S. LAWRENCE, Baltimore: All of the Carrel apparatus used at the present time can be gotten at Harvey Byers, Eighteenth and Chestnut Streets, Philadelphia. Harvey Byers was over this summer and got a model of every apparatus used. They have all the latest improvements that Carrel is using and you can get them there any time you want them. I have seen an exhibition of them and I have gotten some of them. As to whether an open tube should be used or not, Carrel did not use an open tube for quite a while, and on November 4, when I was there I discovered an open tube and asked him about it. He said, "Oh, yes, when you have a small sinus your tube that is tied off at the end does not irrigate the bottom of the well." There bacteria will grow, the fluid comes out from the side, and the bottom of the well remains unirrigated. For that purpose you use a tube open at the end and that puts the solution at the bottom of the well and you irrigate the entire sinus. I have used it at Johns Hopkins with the best sort of results.

Clean up your wound until the bacteria count has gone down to one in five. After you have treated your wound for at least five days take a swab, make a blood smear and see if your cocci will not grow. They have grown for me and for Carrel's bacteriologist. But in a wound in which the count is below one in twenty and remains one in ten or twenty for six days, Dumas' experience is that 20 per cent. of those are absolutely sterile and it is absolutely impossible to get a good culture from them. Dumas' experience is that you can close a wound with cocci in but never with bacilli. I have bacteria charts used in the American Ambulance and I have some charts that I have brought up from Johns Hopkins; I have most excellent results that convince me of the point I made this morning, that this technic can be carried out by industrial surgeons just as well as in the hospitals.

CHAIRMAN PATTERSON: I am going to ask Dr. Sherman if he will close the discussion, because we have some other discussions and papers to follow.

DR. SHERMAN: I do not wish to hold a brief for this Frenchman whose treatment I have outlined. I wish to say that for sixteen years he has been knocking at our doors for a hearing. He has been ridiculed and laughed at. He came to this country, to Johns Hopkins and he was put out as a charlatan, a conceited fool; they did the same thing to him in France, and it was not until this war that he was given a chance. I am holding no brief for him, not at all. I found him to be honest and decent, and I do not like to hear the man's name villified. He has handed something to us I wish I had known fifteen years ago. The reason this substance costs us $5 a pound is because this government of ours charges $2.50 duty on it. Now the price, as soon as it is made in this country, will drop right down out of sight. It is only during this war that he has had a chance to introduce it to the profession, and the French government has seen fit to award him the French Legion of Honor.

CHAIRMAN PATTERSON: I will ask Dr. Milligan to present the report of the Resolutions Committee.

DR. MILLIGAN: The Committee on Resolutions begs leave to submit the following:

Resolved, That this meeting of the Fourth Conference of the Physicians under the auspices of the Department of Labor and Industry of the Commonwealth of Pennsylvania, endorses the amendments to the Workmen's Compensation Law proposed by the Medical Society of the State of Pennsylvania and by the Legislative Conference of the Medical Profession of the state, to wit:

1st. That the period of disability for medical attention, which now is fixed at fourteen days, be changed to thirty days, and that the date of disability be dated from the time the patient reports to the physician, the surgeon, or hospital for medical or surgical treatment.

2nd. That the maximum compensation shall be changed from $75 to $200, and that the words "major operation" be stricken from the Act.

3rd. *Resolved,* That the board appoint a medical referee, who shall devote his entire time to this work.

Resolved, Further, that this committee urges on every man present the obligation of presenting these recommendations to his representatives in the House and Senate of Pennsylvania.

(Signed) JOHN D. MILLIGAN, M.D.,
I. K. URICH, M.D.,
EDWARD MARTIN, M.D.,
J. B. MCALISTER, M.D.,
W. D. ESTES, M.D.,
E. A. KRUSEN, M.D.,
CHARLES A. E. CODMAN, M.D.

DR. MILLIGAN: Mr. Chairman, I move that this report be adopted and transmitted to the Board.

The motion was seconded and put.

CHAIRMAN PATTERSON: Is there any discussion on the motion?

DR. G. F. BELL, Williamsport: I should like to ask the committee whether they assume in that report, that they have taken care of the feature of the Act whereby a surgeon operating on an individual who dies within fourteen days, is not protected and has no protection under the interpretation by the Board of that particular part of the Act? I should like to call the committee's attention to that matter because it has been brought to my personal attention twice during the past year. One case of unusual importance and consequence: A workman employed on the streets of our town, Williamsport, was struck by a careless operator of a motor car. He was knocked down and he had a compound depressed fracture of the skull and was taken to the Williamsport Hospital. I operated on him. He lived about eight days and died. The bill was sent to the employer, that is, to the City of Williamsport, who carried their own insurance, and the attorney who had the matter in charge reported to me that there was no provision for me under that interpretation of the Act, and I got nothing and never could get anything because the construction of the Act is that there will be $100 allowed for funeral expenses and we all know under such circumstances, how much the surgeon gets. I would say that this ought to be taken up very carefully. What is the use of fixing our fee at $25 or fixing it at $300 if we cannot get anything. We ought first to secure ourselves so that we can get something and then stand up for it and not be robbed of it.

Under the old law, as I said, it was the practice when a man was injured in an industrial plant, nine times out of ten if a reasonable bill was sent for the care and attention of that individual, you would get a check from the firm without any question or without any reasoning or inquiring. Today you are limited to a certain fee and the insurance company today gets the money on these major operations of the character I have referred to instead of the medical profession.

Dr. William Bishop, Harrisburg: There are some cases where men have been injured and they did not know it, and did not even have medical attention during the time. Afterward they found out it was a much more serious injury than they supposed. It is unfair to attempt to exclude those people simply because of neglect in reporting. All this time we are all talking from one side, not from equity or justice; we ought to take and make allowances for these men who are honest and fair and though injured they still fail to report; they fail to report to the hospitals and the doctors simply because they do not know the seriousness of their condition; or have had medical attention, and the man who attended at the time failed to recognize the gravity of the condition until it had gone into the hands of someone else. We ought certainly to change that, and make it from the date of injury provided they establish the fact that they have been injured. Leave it just as it is except extend it from the date of injury rather than from the date of reporting. It is unfair to do it as the resolution suggests.

Chairman Patterson: In answer to that I might say that one of the objects of the Compensation Law, as I take it, is to try to return a man to productive labor at the earliest possible period.

Dr. Bishop: That part is reasonable but at the same time we want to protect the man's family and protect the man. Let us try to be a little honest.

Chairman Patterson: Do you not think it is also important, doctor, that the man who is the victim of an industrial accident should report that accident to the physician at the earliest period of time so as to be under competent medical advice and return to his labor as soon as possible?

Is there any other discussion? If not, are you ready for the question?

The motion was put and unanimously carried.

Chairman Patterson: For some time past there has been at the appointment of President Wilson, a committee engaged in investigating the all-important subject of first aid and as a member of that committee one of the distinguished surgeons of Johns Hopkins University has given much of his time and thought to that subject and I am sure we will all be interested in hearing from him on the subject of "National Standards for First Aid," Dr. Joseph C. Bloodgood.

NATIONAL STANDARDS FOR FIRST AID

JOSEPH C. BLOODGOOD, M.D.
Associate Professor, Clinical Surgery, Johns Hopkins University
BALTIMORE

I should make some preliminary introduction to myself so that you will understand my situation in regard to first aid. I am not a member of the Board of Standardization; as far as I know, the Board of Standardization on First Aid has not acted. I have been interested in first aid for various reasons. I think, perhaps, before talking with absolute conviction about a subject I know nothing about I ought to give you some explanation of why I was interested in first aid as a purely research or academic question.

I happened to be in London when the war broke out and the American women who have married Englishmen were very anxious to build a hospital called the American Woman's Hospital. I think some of you appreciate the rapidity with which American women can do things when they make up their minds to do them; and it was not more than three days after the declaration of war that these American women wished to established this hospital, and they wished to have a large meeting in order to advertise it and get money, and they thought that they at least ought to have one American surgeon to make an address. I did not feel so particularly complimented in being asked to make this address, because I was the only American surgeon left in London — all the rest had gotten out. They asked me to make this address. I said I could not make it for ten days, as I had engagements for ten days. They were anxious to know what the engagements were, but I did not tell them. Those engagements were to learn something about what they asked me to talk about, which was military surgery. I went to the library and read all that I could read, especially of recent literature on military surgery; then I went down to the Red Cross and talked with the British surgeons there; then I went to the various surgeons in the London hospitals whom I knew very well and got off those things I had just read; then I made an address before this audience on "Transportation and First Aid Instructions and Military Surgery"; and I now have, in Europe, a great reputation as a military surgeon. Now that is the humorous part of it. I came back to this country and it occurred to me that perhaps I was not the only surgeon who was so ignorant of first aid and who paid no attention to military surgery and the new problems presented by it, so I went over and consulted with the Surgeon-General and the surgeons in Washington and that led up to the meeting of the American Conference for First Aid in August of 1915, a little over a year ago, and at that time, or very shortly afterward, a Board of Standardization was appointed. I know they are at work; I know they are trying to get data with which to make an attempt to standardize first aid.

So much for my interest in the subject. I felt that it was time to make an investigation, at least to see whether it was possible to improve our results in accident surgery. I think that Dr. Estes and the committee of doctors of the American Medical Association will agree with me that the results in the treatment of simple fractures, as far as the period of disability and the ultimate ability to use the injured extremity in the work the patient did before are concerned, are not so good as they should be. The results in all accidental wounds, even in civil life, are not so good as they should be. I do not mean in the sense of mortality. I do not believe the element of mortality is such an important one. But the element of actual loss of time and the element of functional disability, such as a stiff finger or paralyzed muscle, a contracture, something that interferes with the individual's using that member as he did before, is not as it should be. So there was just as much reason for an investigation in regard to the whole problem of accidental wounds in peace as there was for an investigation in regard to the prevention and treatment of tuberculosis or as regards an attempt to reduce the number of deaths from cancer. Perhaps none of you know, but I am quite interested in cancer and I have worked for a quarter of a century on cancer yet I think my point of view on cancer may be improved.

So from no previous great experience in the treatment of accidental wounds I took up the investigation in regard to first aid. I have corresponded now with eight hundred individuals, personally corresponded with eight hundred individuals. I have heard at least once from every one of those eight hundred individuals answering the five questions I put to them, and from many hundreds I have had a number of letters. I have had a great deal sent to me by surgeons connected with railroads and mines and industries. I doubt if there is a first-aid book that has ever been published in English that I have not in my library. I have all the newest first-aid messages that the surgeons of this country are getting up to give to their laboring men; that is, I have a pretty good bird's-eye view of first aid as it was in August, 1915, up to date, even including the Carrel method.

The most remarkable thing about this whole subject is its lack of standardization. And it is the same in almost everything in medicine and surgery, except where we have an exact method of diagnosis and an exact method of treatment. We might say that the treatment of syphilis to a certain extent is standardized. We have a method of diagnosis by means of the Wassermann reaction, and we have more or less of an exact treatment by salvarsan, but these by no means cover the entire subject of the diagnosis and treatment of syphilis. I do not know of any other disease, however, today, in which the diagnosis and treatment are so well standardized as syphilis; perhaps malaria may stand second. I think there is a uniform agreement that in every accidental wound in which there is any possibility of the injection of soil the patient should be protected with an antitoxin of tetanus If there is any other method proposed for the treatment of sore throat than the antitoxin of diphtheria, on which we have a uniform agreement in standardization, I should be glad to hear of it.

I should like to tell you just one story because the time is late, and although I am not very good at telling stories I should like to leave a few impressions that you will remember. One of our servants burned her face. She had no business to burn herself, no business to turn on the gas stove, was not supposed to have done it. She knew nothing about that stove and the use of gas, but she thought she would cook herself something and the gas came up and burned her face. All of this first aid material happened to be in the library in the house. A nephew of mine was acting as secretary for me at the time and there were only two people besides the burned servant there—the secretary and my sister. Immediately, when they saw the girl's face was burned, they rushed down to the library and began to read the first aid books in regard to what should be done. My nephew said, "This book says so and so"; and my sister said, "This book says so and so"; and so they kept on and finally they made an agreement that they would each take a book and when they found that each had a book that agreed as to the treatment of burns they would adopt that treatment; and when I returned they were still reading the books; the maid received no treatment from them, and no treatment whatever from me. I wish I had a picture before and after the burn to show you, projected on the screen; absolutely no deformity; a burn of the first degree; no treatment; no deformity.

One other story to show you the difficulty of getting at what the truth is. Now we must have something; we must be enthusiastic; we want to be progressive; and we must make allowances always. We must have a few who are enthusiastic. We can take turns being enthusiastic, because it is a delightful sensation, but a few must remain skeptical while a few are enthusiastic so we can get a middle course. You remember the story by Mark Twain, of the sailor who almost died from boils because he was overfed, and then recovered from the boils because he was starved, and when he got through he ate so many bananas that by the time Mark Twain reached the island it was reported that the man had eaten one hundred and fifty bananas in one day. Mark Twain spent some weeks in investigating and he said he found it to be a gross exaggeration and that the man had not eaten one hundred and fifty bananas; it was only one hundred and forty-nine. This story is to illustrate the Carrel method. There may be some exaggeration in regard to the minutiæ of detail, and perhaps the method as we will use it later will not be so difficult.

We must bear in mind that first aid, if we are going to use any definition, is the first treatment that the accidental wound receives, and that treatment should be immediate. A man shot lies in no-man's land for four days and then comes into the trenches and his comrade puts on a first-aid dressing; that is not first aid. So we see that first aid is something that is done immediately; that is the object.

The second stage in the treatment of an accident is the treatment by a trained physician or surgeon. Now we are confronted by this condition: In the first place the surgeons disagree as to what they would have done if they had seen this wound first, and they disagree in the after treatment, as for example, whether the end of the tube should or should not be tied off. Of course, that is not essential. I want to emphasize the difficulty in standardization. Dr. Martin has made one very good answer to it. When I came to Cincinnati a year ago, I was greeted by this in the headlines across the top of a Cincinnati paper: "Charley says cut it out; and John says leave it in." Charley Mayo said "Take the gall bladder out"; the other, my friend and colleague, John Finney said, "Leave the gall bladder in." Now, that must make a peculiar impression on the profession throughout the country, that after twenty-five years the most experienced surgeons in the country differ as to whether the gall bladder should be taken out or left in; but fortunately Dr. Martin a year later was able to turn it so I think we can appreciate it. He said, "It really makes very little difference whether you take it out or leave it in, if you will only do one or the other." Now, that to a certain extent must be borne in mind in the standardization of first aid. For example, in the eight hundred letters asking what they would do for a wound, five per cent. of the eight hundred tell us what they would teach somebody else to do, and ninety-five per cent. tell us what they would do themselves; so the great majority of men have not considered what they would teach. Granting that what the surgeons would do first would be what they would tell somebody else to do, the great majority of surgeons voted for iodin. I should like to send eight hundred letters out again in two months and I believe that iodin might be re-elected but there would be a new candidate with a large number of votes and that would be Dakin's fluid. There is something in the popularity of a new remedy.

I will have to tell you one other story and I trust I will not take too much time, in attempting to present it oratorically. I was asked in Milwaukee some years ago to make an address on cancer. They told me that I was the only one to speak. I prepared an address with lantern slides and when I got there Dr. Murphy was there, and Dr. Rodman, and the meeting was to begin at eight o'clock and the smoker was to be at nine o'clock—three speakers in an hour. When Dr. Rodman finished it was ten-thirty, and they then asked me to speak. I said I was in a peculiar position; that Dr. Murphy had taken all the time and apparently the audience enjoyed it, and that Dr. Rodman had taken all the oratory, and that there was nothing left for me to do but to give them a few facts. Now I believe, speaking most modestly, that in spite of the individual surgeons in this audience who have a very much larger experience in fact than I have, in regard to the treatment of accident wounds, I have been in the fortunate position to have heard the stories of the lives of their colleagues in regard to first aid, and they differ.

There is one thing, however, that is very impressive, that has perhaps been borne out in the last few years. There are surgeons whose environment is such that they get their accident cases at once; for example, look upon this audience as a group of laborers; look upon the Governor's room as the hospital with the surgeon there; we get hurt in this room and we step into the Governor's room and are treated by a trained surgeon; that first aid is by a trained surgeon. Now, in a great many industries that is not possible, but as far as I can see, that is the chief thing to do when it is possible, to shorten the time between the injury and its treatment by a trained individual. Second, the laborers may be too small in number to justify the expense of having a surgeon in the Governor's room. We must have a trained nurse, and we can get a trained nurse at a little less expense than we can get a trained surgeon. Then the third thing to do is to take the foremen of the shop. If we cannot afford a nurse take the foremen. Teach the foremen instead of teaching every one in this room, concentrating on one or two men. The next thing is to attempt to teach the individual. For example, on railroads men are injured in trains far from the doctor; and in war a man is shot at an outpost far from anyone and he must use principally his first aid package. So the problem of first aid, of what we teach the individual, of what we teach the foreman, and of what we teach the nurse, and what the doctor would do, each one is a different problem.

Now, all that I can gather so far is this: That we have really no good records as to what first aid except by a doctor will do; and we have a great many records to show that first aid by a doctor can be disastrous if that doctor is not clean; so that the most important thing to bear in mind in teaching first aid is that some doctors who are not practicing surgery are more dangerous in treating a wound than an individual who is not a doctor, because all doctors come in contact with pyogenic organisms more than ordinary individuals, and the average doctor's hand in a wound is more dangerous to the wound than the average layman's hand. I think I have the facts to prove that, it is not a difficult thing to teach, but it is a difficult thing to practice. Here we have Dr. Lawrence telling you that in Johns Hopkins Hospital he thinks one of the late infections was due to an intern or nurse, something careless.

There is one point on which there is a pretty uniform agreement in regard to teaching the individual, and that is that the essential feature of first aid is noninterference. You must remember that we have centuries of practice of medicine against noninterference. The whole development of medicine has been noninterference, and in first aid the first treatment by any individual, not specially trained, is noninterference. The second is to leave the patient alone; give him a chance to get his breath. If you ever played football and got kicked in the abdomen you know the most pleasant thing is to be left alone until you get a few breaths; and I believe we can teach, beginning with children, the simpler things in regard to noninterference, leaving injured persons alone, as comfortable as possible, lying flat on the back, and if possible to do nothing more except get hold of a doctor.

Now the time is up but I want to make only one point in regard to Dr. Lawrence's remarks on surgical bacteriology which has a definite relation to first aid. I believe that first aid instruction, instead of teaching the bones, and the course of the arteries, and the muscles, would better be begun by teaching bacteriology. The danger of an injury is not the hemorrhage so much as the infection, and every individual should know something about infection; why, if they cut their finger, they should not put it into their mouths; why, if they cut their hands, they should not go to the gardener to put a chew of tobacco in the wound. Surgical bacteriology, or a knowledge of surgical bacteriology is more important in first aid than anything else and there is not a book that has anything in it.

One other point. Until Carrel started this method of treatment, with a few exceptions, surgical bacteriology had become a lost art. In the Johns Hopkins Clinic the last cultures taken as a routine were sixteen years ago, when I presented the medical department of Johns Hopkins with all the bacteriological paraphernalia, under the direct promise that they would look after our bacteriology, which they did by taking no more cultures; and we lost our interest in surgical bacteriology and Carrel has revived it. I believe it would be a splendid thing if we could get Rockefeller or Carnegie or the state of Pennsylvania to equip a private car and put in it the men who have been to France, if they would take the time, and consent to do this work, surgeons and bacteriologists, and let them go around the country and in a few hospitals plant the seed of this treatment so that within a year we could get an experience which if left to percolate according to our method, it will take four or five years to disseminate. I should be willing to contribute toward such a car to disseminate the things which this Carrel method has put in application, and every hospital in the country could see what it really means. I believe if I were in charge of an industry I would pay for such an investingation because I believe that the Carrel method will shorten the period of disability and the functional derangement. It will be a matter of dollars and cents to employers of labor.

DISCUSSION

Chairman Patterson: Major Robert U. Patterson, M. C., U. S. Army, who was to have opened the discussion on this paper has been called for service by the government to the Mexican border and in the few minutes before the motion pictures will be shown we would be glad to have any discussion on the subject of first aid that you desire.

The film that we have here today is entitled "The House That Jack Built." These pictures were taken by the New York Central Railroad Company under the direction of Marcus A. Dow, the General Safety Agent of that company, and the film is considered to be one of the finest Safety First films ever produced.

(Motion picture film shown.)

Chairman Patterson: Eighty per cent. of these accidents are due to the men themselves and can be prevented if we all get together and put our shoulders to the wheel. Just think of it, 250,000 disabling accidents in Pennsylvania last year and 2,500 of them fatal. It sounds like the record of the slaughter in the European War. This can be stopped if we all get together and try to do it. The individual worker is responsible for the accidents to himself and his fellow employees very, very often.

On behalf of Commissioner Jackson and myself I wish to express to you our very deep appreciation of your courtesy in coming here to this meeting. We cannot go forth like the crusaders of old and put on our banners the Cross of Safety, but let us put on high that slogan, "And the end is, that the workman shall live to enjoy the fruit of his labor; that his mother shall have the comfort of his arm in her age; that his children shall have a father; that his wife shall not be untimely a widow; and that helpless wrecks who were once strong men shall no longer be a by-product of industry."

The Conference now stands adjourned.

List of persons attending the Fourth Conference of Industrial Physicians, held under the direction of the Department of Labor and Industry, Feb. 16, 1917

Dr. E. G. Alexander, 1627 Oxford St., Philadelphia; Penna. Mfg. Association, Finance Bldg.
Dr. O. R. Altman, Uniontown; H. C. Frick Coke Co., Bessemer Coal and Coke Co., Pittsburgh, W. J. Rainey Co., Uniontown.
Dr. Jesse E. Ambler, Ford City; Pittsburgh Plate Glass Co., Frick Bldg., Pittsburgh.
Dr. C. D. Ambrose, Ligonier; Ramsey Coal Co.
Dr. G. R. Anderson, Barnesboro; P. R. R. Co., Barnes and Tucker Co., Maderia-Hill Coal Mining Co.
Dr. Franklin F. Arndt, 243 Jefferson Ave., Scranton; Pennsylvania Coal Co.
B. H. Arnold, General Electric Co., Erie.
Dr. M. J. Backenstoe, Emaus; Donaldson Iron Co.
Dr. Wm. F. Bacon, York; General Roofing Mfg. Co.
Dr. J. Walter Barr, Nanty Glo; Nanty Glo Coal Mining Co.
Dr. C. A. Barron, 5923 Keystone St., Wissinoming, Philadelphia; Quaker City Rubber Co.
Dr. Wilmer R. Batt, State Registrar, State Capitol, Harrisburg; State Department of Health.
Dr. George W. Bauder, 1225 N. Second St., Harrisburg; Swift and Co.
Dr. G. Franklin Bell, 821 Diamond St., Williamsport; P. & R. R. R., S. & N. Y. R. R., N. Y. Central R. R., Williamsport.
Dr. John H. Bennett, York; Supt. Public Safety.
Dr. J. C. Biddle, State Hospital, Fountain Springs.
Dr. William Thomas Bishop, 211 Pine St., Harrisburg; P. R. R. Co.
Dr. Walter A. Blair, 408 DeKalb St., Norristown; Alan Wood, Iron and Steel Co., Widener Bldg., Philadelphia.
Dr. Walter H. Blakeslee, 3328 N. Seventeenth St., Philadelphia; Department of Labor and Industry, Harrisburg.
Dr. Joseph C. Bloodgood, 904 N. Charles St., Baltimore, Md.; Johns Hopkins University.
Dr. Russell S. Boles, Fifty-Third St. and Overbrook Ave., Philadelphia; McNeely and Price, Fourth and Race Sts.
Dr. T. John Bowes, 1000 Chestnut St., Philadelphia; Philadelphia Electric Co., 1000 Chestnut St.
Dr. Harry Brady, Masontown; Consolidated Coke Co., Grays Landing.
Dr. Elizabeth B. Bricker, Department of Labor and Industry, Harrisburg.
Dr. Harold S. Broomall, 7201 Cresheim Rd., Philadelphia; Surpass Leather Co.
Dr. Geo. W. Brose, 417 W. Market St., York; York Electric and Machine Co.
A. S. Buckley, Athens; Ingersoll-Rand Co.
Dr. Stillwell C. Burns, 1326 Spring Garden St., Philadelphia; Baldwin Locomotive Works, 500 N. Fifteenth St.
Dr. William H. Cameron, Box 54, Oakland Station, Pittsburgh; Standard Chemical Co.
Dr. John A. Campbell, 838 Funston Ave., Williamsport; J. E. Dayton Co., Lycoming Rubber Co., West Branch Steel Co.
Dr. R. C. Casselberry, 700 Madison St., Chester; Baldwin Locomotive Works, Eddystone Amunition Co., Eddystone.
Dr. R. W. Chaffee, 1626 W. Genesee St., Syracuse, N. Y.; Solvay Process Co., Semet Solvay Co.
A. H. Chandler, Ford City; Pittsburgh Plate Glass Co.
Dr. J. L. Christian, Lopez; Connell Anthracite Mining Co., Scranton.

Dr. Israel Cleaver, 223 S. Fifth St., Reading.
Dr. William R. Clements, 163 Maple Ave., Woodbury, N. J.; du Pont Powder Co., Gibbstown, N. J.
Dr. Charles A. E. Codman, S. E. Cor. Spruce and Forty-Second Sts., Philadelphia.
Dr. Ben. F. Coe, Clymer; Clearfield Bituminous Coal Corp., Russell Coal Mining Co.
Dr. A. W. Colcord, Clairton; Carnegie Steel Co., Pittsburgh, Penna. R. R. Co., Clairton.
Dr. W. Collins, 1543 Arch St., Norristown; Alan Wood, Iron and Steel Co., Widener Bldg., Philadelphia.
Dr. Carson Coover, 223 Pine St., Harrisburg.
Dr. F. W. Coover, 223 Pine St., Harrisburg.
Charles F. Copeman, Irwin; Westmoreland Coal Co.
Dr. John J. Corrigan, 336 W. Broad St., Hazleton; Harwood Coal Co., L. C. & N. Co.
Dr. A. Girard Cranch, c/o General Electric Co., Erie.
Dr. T. R. Crowder, 79 E. Adams St., Chicago; The Pullman Co.
Dr. John F. Culp, 410 N. Third St., Harrisburg.
Dr. Thomas Darlington, 27 Washington Sq., New York City; American Iron and Steel Institute, 61 Broadway.
Dr. E. T. Davies, 822 Main St., Old Forge; Jermyn Coal Co.
Dr. Wm. Rowland Davies, Scranton; Penna. Manufacturers Association Casualty Insurance Co.
Dr. George C. Davis, Milton; American Car and Foundry Co.
Dr. J. H. Davis, Coatesville; Worth Brothers Co., Midvale Steel Co.
Dr. R. B. Dobbins, 1940 S. Heights Ave., Youngstown, Ohio; Youngstown Sheet and Tube Co.
Dr. Wm. F. Dolan, 28 Adams St., Quincy, Mass.; Fore River Shipbuilding Co.
James B. Douglas, 1401 Arch St., Philadelphia; The United Gas Improvement Co.
Dr. F. E. Drumheller, Sunbury; Penna. R. R. Co.
Dr. Thomas B. Echard, Connellsville; H. C. Frick Coke Co.
Dr. H. B. Emerson, Yukon; Westmoreland Coal Co., Irwin.
Dr. L. A. Ensminger, 614 Hume-Mansur Bldg., Indianapolis, Ind.; Big Four Railway Co., N. Y. Central Lines.
Dr. Ernest L. Erhard, Glassport; Pittsburgh Steel Foundry Co., and Pittsburgh Steel Co.
Dr. W. L. Estes, 805 Delaware Ave., South Bethlehem.
Dr. E. S. Everhart, Lemoyne.
Dr. W. D. Farber, 16 W. Twenty-First St., Northampton; Lawrence Portland Cement Co.
Dr. J. K. Farrar, Audenried; L. and W. B. Coal Co., C. M. Dodson Coal Co., Beaver Brook.
Dr. Frank U. Ferguson, Gallitzin; Tunnel Coaling Co., Penna. Coal and Coke Corp., Taylor and McCoy Coal and Coke Co.
Dr. Joseph D. Findley, Altoona; Penna. R. R. Co.
Dr. Judson C. Fisher, 45 William St., New York City; Globe Indemnity Co., 45 William St.
Dr. M. J. Flanagan, 307 N. Shamokin St., Shamokin; T. R. Clarkson and Co.
S. N. Fowler, 1107 Times Bldg., New York City; Life Saving Devices Co., 180 N. Market St., Chicago.
Dr. H. B. Fralic, Mt. Holly Springs; Mt. Holly Paper Co.
Dr. J. W. Fredette, Mercy Hospital, Pittsburgh.
Dr. Spencer M. Free, 101 S. Jared St., Dubois; Northwestern Mining and Exchange Co., Adrian Furnace Co., Buffalo, Rochester and Pittsburgh Railway Co., New York Central Lines.
Dr. Isaac C. Gable, 46 S. Beaver St., York.
Dr. James W. Geist, 527 S. Franklin St., Wilkes-Barre; Lehigh and Wilkes-Barre Coal Co.
Dr. John M. Gelwix, Chambersburg; Cumberland Valley R. R. Co.
Dr. D. H. M. Gillespie, 28 W. Eighty-Third St., New York City; New York Central Railroad Co.
Miss Katharine G. Gindele, 1246 S. Forty-Fifth St., West Philadelphia.
Dr. James R. Gormley, Monaca; Member of House of Representatives.
Dr. W. T. Graham, Sunbury; Penna. R. R. Co.
Dr. Robert B. Greer, 371 N. Main St., Butler; Standard Steel Car Co., Butler Car Wheel Co., Penna. Railroad Co., Bessemer and Lake Erie Railroad Co.
Dr. Martin E. Griffith, Monessen; Pittsburgh Steel Co.
Dr. Malcolm C. Guthrie, 109 S. Franklin St., Wilkes-Barre.
Dr. Edward N. Hagin, 403-4-5 Hamory Bank Bldg., Sharon; Sharon Steel Hoop Co.
Dr. G. H. Halberstadt, Pottsville; P. and R. Coal and Iron Co.
Dr. W. M. Hamilton, Penna. R. R. Co., Pitcairn.
Dr. C. J. Hamme, Dover.
Dr. Frank Hancock, Overbrook.
H. B. Harmer, 1000 Chestnut St., Philadelphia; The Philadelphia Electric Co., 1000 Chestnut St.
H. Herbert Harris, Milton; American Car and Foundry Co.
Dr. Alexander S. Harshberger, Lewistown; Penna. Railroad Co.
Dr. G. W. Hartman, 801 N. Third St., Harrisburg.
Dr. G. L. Hays, 816 Empire Bldg., Pittsburgh; National Tube Co.
Dr. T. Orlando Helfrick, Spangler; Penna. Coal and Coke Corp., Marstellar.
Dr. William B. Henderson, Philipsburg; Cottage State Hospital, Philipsburg.
Dr. C. P. Henry, 846 Center Ave., Reading; The Carpenter Steel Co.
Dr. George S. Hensyl, Mahanoy City; Lehigh Valley Coal Co., Mill Creek Coal Co.
Dr. Thomas B. Herron, Third St., Monessen; Independent Brewing Co.
Dr. Martin L. Hershey, Hershey.
Dr. David Joseph Hetrick, 54 N. Thirteenth St., Harrisburg; Dauphin Cigar Factory.
Dr. H. Chalmers Hickman, 613 Delaware Ave., Wilmington, Del.; Joseph Bancroft and Sons Co.
Dr. William S. Higbee, 1703 S. Broad St., Philadelphia; Pennsylvania Salt Mfg. Co., Widener Bldg.
Dr. W. J. Higley, Toledo, Ohio; The Willys-Overland Co.
Dr. Joseph B. Hileman, 413 Market St., Harrisburg; Pennsylvania Railroad Co., Philadelphia.
Dr. Hiram M. Hiller, Chester; Sun Oil Co., Sun Ship Co., Suburban Gas Co., Penn-Seaboard Co.
Dr. Wm. H. Hinkel, Tamaqua; Atlas Powder Co., Wilmington, Del.
Dr. Frederick L. Hoffman, Newark, N. J.; Prudential Insurance Co., Newark, N. J.
Dr. W. M. Holtz, 435 Sixth Ave., Pittsburgh; Pittsburgh Railways Co., and Duquesne Light Co., 435 Sixth Ave.
Dr. J. J. Hood, 5147 W. Twenty-Fifth St., Cicero, Ill.; National Malleable Castings Co.
Dr. P. D. Hoover, 144 W. Main St., Waynesboro; Landis Tool Co.
Dr. P. H. Hourigan, 735 Seneca St., Buffalo, N. Y.; Larkin Co.

Dr. W. H. Howell, 1123 Twelfth Ave., Altoona; Penna. R. R. Co.
Dr. W. G. Hudson, du Pont Bldg., Wilmington, Del.; du Pont Powder Co.
Dr. G. M. Hutchison, Dagus Mines; Northwestern Mining and Exchange Co., DuBois.
Dr. E. H. Ingram, Richmond and Norris Sts., Philadelphia; Wm. Cramp and Sons Ship and Engine Bldg. Co., American Engineering Co., Richmond and Norris Sts.
Dr. A. P. Isenberg, 413 Market St., Harrisburg; Penna. R. R. Co.
John Price Jackson, Department of Labor and Industry, Harrisburg.
M. F. Jacobson, 50 State St., Boston, Mass.; American Mutual Liability Co., 50 State St.
Dr. R. H. Jeffrey, Uniontown; W. J. Rainey.
Dr. S. H. Johnson, 4025 Butler St., Pittsburgh; Heppenstall Forge and Knife Co., Forty-Seventh and Hatfield Sts.
Dr. J. M. Johnston, Huntingdon.
Dr. A. S. Jones, 415 E. Spurzheim St., Shamokin; Susquehanna Coal Co., Wilkes-Barre.
Dr. J. P. Jones, 612 Jefferson Ave., Niagara Falls, N. Y.; Union Carbide Co.
Dr. N. M. Jones, 815 Guardian Bldg., Cleveland, Ohio; East Ohio Gas Co., Cleveland Telephone Co.
Dr. W. O. Keffer, Frugality; Eastern Bituminous Coal Co., Penna. R. R. Co.
Dr. H. M. Keller, Hazleton; Estate A. S. VanWickle, Colerain.
Dr. S. V. King, 918 Westinghouse Bldg., Pittsburgh; American Sheet and Tin Plate Co., American Bridge Co.
Dr. H. J. Kirby, Cokeburg; Ellsworth Collieries Co., Ellsworth.
Charles F. Kramer, 1638 N. Third St., Harrisburg.
Dr. E. A. Krusen, Norristown; Homeopathic Society of Penna.
Dr. W. F. Kunkle, Williamsport.
Dr. Joseph A. Lafferty, 200-1 Trust Company Bldg., McKees Rocks; Fort Pitt Malleable Iron Co., Pittsburgh.
Dr. D. H. Lake, Kingston; Kingston Coal Co.
Dr. Charles A. Lauffer, 521 Franklin Ave., Wilkinsburg; Westinghouse Electric and Mfg. Co., East Pittsburgh.
Dr. G. L. Laverty, 404 N. Third St., Harrisburg; Harrisburg Pipe and Pipe Bending Co.
Dr. Joseph S. Lawrence, 810 N. Broadway, Baltimore, Md.; Johns Hopkins University.
Dr. H. D. Leh, Egypt; Lehigh Portland Cement Co., Allentown.
Dr. W. H. Lipman, Swift and Co., Chicago.
Dr. S. G. Logan, Ridgway.
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Dr. D. B. Lowe, B. F. Goodrich Co., Akron, Ohio.
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HOW WHISKY MIGHT HELP ITSELF

War gives booze the chance of its life to make headway against the antagonism which is now steadily wiping it off the national map. Most of us are convinced that whisky is neither a citizen nor a patriot, that it has absolutely no regard for either local or national welfare. The rum shouters have a chance to dispute this. They know perfectly well how booze has been subordinated to the needs of war in France, Russia, and other countries at war. No doubt the essential facts are all on file in the archives of the various associations devoted to boosting alcohol as a beverage. All they need to do now is to line up their members, voluntarily, in support of like measures. No whisky round army camps or munition factories, no illicit opening during prohibited hours, no fuddling dens in the big cities for soldiers on leave—these are a few of the more obvious principles. Of course the spirits statesmen can go further than that with their self-abnegation if they feel like doing so. If they do not, if booze is to blunder along and prove itself a peril in war as well as a curse in peace, then the next five years may very well see the last of whisky in our country. When waked up, Americans are generally a rather practical sort.—*Collier's*, April 22, 1917.

SELECTION

A NATION-WIDE MEDICAL ESPRIT DE CORPS

Spontaneous Spread of the Plan for Safeguarding the Interests of Surgeons and Physicians Serving in the War

By Henry D. Jump, M.D.
President of the Philadelphia County Medical Society

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The physicians and surgeons who volunteer for this war—and we shall need many thousands of them—may or may not as a class incur sacrifice of their material interests larger than that of other groups, professional or lay. But it is certain that, in the circumstances commonly attendant on their patriotic abandonment of civil practice, built up in years of concentrated study and effort, they do stand to lose everything. And one man's all, however large or little it be, is as much to him as his all is to another. Happily for the members of this one profession at least it was realized, when participation of the United States in the great conflict was seen to be inevitable, that for many years they had been organized so closely and so efficiently for the welfare of humanity that it was now possible to utilize their organization in their own behalf.

In February last the Philadelphia County Medical Society planned a census of the medical resources of the local community with particular reference to the requirements of the war. The questionnaire which was carried out included all members' age, sex, dependents, general qualifications in surgery and medicine, social connections, and military associations or inclinations. A committee was chosen to assist in preparation of medical men for army and navy examinations, and a development of the plan applied especially to care for the practice of every member who should volunteer or be called on for military service.

In the medical profession it is a common arrangement, when a physician is sick, that some one among his colleagues shall care for his practice without pay. When he takes a vacation, he selects a substitute who attends to his practice and, unless there be some special agreement, retains its recompense in entirety. In either case, the substitute understands that under no circumstances is he to treat any patients of his principal after the return of the principal to his work.

The situation of those men of the profession who should undertake military duties, it was realized, must be analogous to such temporary relinquishments of practice under peace conditions. My own view has been that the man who goes to the front deserves a measure of support very closely approximating that which would be accorded him if he were to break his leg. He should have during his absence from his civil practice, a competent substitute; and the substitute should feel that the service he renders is one of patriotism and feel inspired, as well, by the esprit de corps of the profession.

Such unselfish and adequate care of the absent member's practice is of great, nay vital importance, to him and to his family. The pay of an army officer is in many instances far less than is the usual earned income of the medical practitioner of recognized capacity and standing. The pay of the medical officer appointed to the rank of first lieutenant is $2,000 a year. The few perquisites and allowances attaching to a commission may be worth $200 or $300 additional. The average income of the men who have gone into our first medical units has ranged from $5,000 to $20,000 a year. The discrepancy is more than embarrassing financially, while any protracted absence from practice is liable ultimately to be ruinous.

It was the sense of the Philadelphia County Medical Society that the man who should do military service would be performing a service for all; that his practice should be taken care of; that his family should receive something like a just return from his established business; and that his patients should not be allowed to wander away to other physicians.

The plan as devised is that the member engaging in military service shall select a substitute who attends a practice similar to his and is in sympathy with him personally and professionally. Because it would not be practicable to require of the substitute so great a burden of extra labor without any recompense, the society determined on one third of the income as the return sufficient for the locum tenens, while the two thirds remaining shall go to the family of the absent practitioner.

It is hoped that a central office will be established that shall serve as a clearing house for all such accounts and thus, placing the system on a business foundation, minimize the countless difficulties incident to every such arrangement—volume of business transacted; bills collected and unpaid; and other details which, in ordinary trade intercourse, commonly require authority of some sort in supervision.

The plan, having been brought up with Surgeons General Gorgas, Blue and Braisted, they presented it, with their approval, in the *Army and Navy Journal* as the Philadelphia Idea. Beyond that reference, and some local mention, it received no publicity. It was purely altruistic. Yet it is surprising how this bit of practical altruism has taken hold and spread.

Throughout the state of Pennsylvania—in the counties of Allegheny, which includes the city of Pittsburgh, of York, Luzerne and elsewhere—it has been adopted by the medical societies. Indianapolis has adopted it. Baltimore, with a different apportionment of the income derived from practice, may fairly dispute precedence with Philadelphia. The clergy of several among the various denominational churches in Philadelphia have arranged to employ it in their field; it has been broached and is gaining ground among members of the legal profession.

There is now a very bright prospect that the nation's arm will be greatly strengthened for the war by this simple, forthright plan for putting our patriotism on its proper, practical business basis.

APPLICABLE TO COUNTY SOCIETIES

"It ain't the guns nor armament, nor the band that
 they can play,
But the close cooperation that makes them win the
 day;
It ain't the individual, nor the army as a whole,
But the everlasting team-work of every bloomin'
 soul."
—Rudyard Kipling.

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The Medical Society of the State of Pennsylvania does not assume responsibility for any statements or opinions published in this Journal.

ATHENS, PA., JUNE, 1917

AN APPEAL TO MEDICAL MEN

To the Medical Officers Reserve Corps are eligible all able bodied doctors under 55 years of age. Papers of application may be had of the Surgeon General, U. S., Washington, or of the various centers for enrollment established in all the large cities of the state.

Satisfactory evidence of physical and mental fitness is elicited by examination. Commissions are issued with the rank of First Lieutenant, M. O. R. C. When needed in the Army the Reserve Officers receive orders and at once are granted pay of $2,000 a year with certain added sums according to assignment. Active service is both a duty and a privilege.

We who send this letter, all officers of the Reserve Corps, ask you to join it because we believe that every medical man should endeavor to serve in some capacity.

The medical military authorities decide how, when and where we shall serve. We trust them to use us wisely, and with due consideration for home interests, knowing that any duty to which we may be called is an essential part of that adequate preparation which leads to efficient action.

We believe that the doctor who bears no added burden during the war and who becomes richer because of it brings no credit to his profession, his country or himself.

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THE NEW YORK SESSION OF THE A. M. A.

The Sixty-Eighth Annual Session of the American Medical Association held in New York this month will be remembered as one of the most important in the history of the association. The total registration was 5,147.

The registration from Pennsylvania, 552, was, as should be expected, larger than that of any state other than New York. The scientific programs were varied, interesting and valuable, and were, like all other departments of the session, influenced not a little by the nation's present needs. In place of the usual President's Reception and Ball there was a Patriotic Meeting at the Hippodrome on Thursday evening, attended by some six thousand physicians and guests. The music was furnished by Sousa's Band, and Mme. Frances Alda sang Rule Britannia, La Marseillaise, and the Star Spangled Banner. Addresses were made by Mayor John P. Mitchel, Hon. Dudley Field Malone, Dr. George E. Vincent and Col. Theodore Roosevelt.

The House of Delegates transacted its business in three meetings, Monday forenoon, Tuesday forenoon and Thursday afternoon. It was enabled to do this because all the resolutions and recommendations presented by the various officers and councils as well as the resolutions offered by individual members were referred to reference committees for consideration when the House was not in session. A delegation of distinguished members was appointed to go to Washington and confer with the president and others as to how the medical profession can best be of assistance to the country in these trying times. To this delegation was committed various resolutions pledging the support of our physicians and expressing the needs of our armies from a medical view point. The resolution taking the most time and causing the warmest discussion was that coming from the Council on Health and Public Instruction and which discouraged the use of alcoholic beverages, and stated that there is no scientific proof that alcohol has value as a stimulant or a food. This was passed on the last day by a good majority.

Dr. Arthur D. Bevan, Chicago, was unanimously elected President-Elect and Drs. Craig and Pusey were reelected without opposition as Secretary and Treasurer, respectively, the nomination of the latter coming from the Trustees. Drs. Philip Marvel and W. T. Sarles were also reelected Trustees without opposition. Dr. H. Bert Ellis, Los Angeles, was elected Trustee in place of Dr. Jones, deceased. Dr. Wendell C. Philips, New York, was elected without opposition Trustee in place of Dr. W. T. Councilman, Boston, who resigned on account of poor health. Chicago was selected as the place for the next session.

Pennsylvania was represented in the House of Delegates by Drs. William F. Bacon, David N. Dennis, Herbert B. Gibbey in place of Dr. A. R. Allen, Edward B. Heckel, Wilmer Krusen, John D. McLean, C. L. Stevens, Frederick L. Van Sickle, and S. J. Waterworth in place of Dr. Charles G. Strickland. Dr. Heckel was appointed a member of the Reference Committee on Hygiene and Public Health, and Dr. Stevens was a member of the Reference Committee on Amendments to the Constitution and By-Laws. Dr. Lawrence Litchfield was selected as third Vice President without opposition.

IT IS UP TO THE MEDICAL PROFESSION

The world never before saw such a war as the present one and the United States never had the resources of the nation taxed as the present conflict will tax all the energies of our country. The success of our armies and our navy depend in no small part on the efficiency of our medical men and measures. The profession must face the responsibility. Organized efforts are being made to have all the medical men that may be needed offer their services and have the volunteers so distributed that hospitals and communities will not be left without medical protection. The comparatively few medical men under 31 years of age should promptly make application for the medical corps and not wait to be drafted into the service. The qualified medical man who is drafted will in most cases probably gravitate into the medical service, but he has no assurance that he will not be compelled to serve as a private in the army. Every physician who can see his way clear to join the medical corps should do so at once.

It is the wish and hope of the leaders of the profession that no locality shall be left without adequate medical men, and that each physician who remains at home will be willing to take care of the practice of a fellow physician who joins the service and turn over to him or his family a portion of the collections, and so far as he may be able, restore to the physician his clientele when he returns. The Michigan State Medical Society called a special meeting to consider this question and adopted a plan whereby the society assumes the obligation for the care and protection of the families and dependents of the members who enter into actual war service for the nation. In this state the county societies of Allegheny, Bucks, Carbon, Chester, Lancaster, Luzerne, Philadelphia and York are among those that have adopted some plan for the protection of the practice of those members who enlist. County societies should see that no member in the service allows his membership to lapse and thus forfeit the benefits of the medical benevolence fund. Lackawanna is one of the county societies that has voted to give free treatment to the families of the men who enlist or are called to the colors.

HONOR ROLL FOR JUNE

The following component county societies have forwarded the *per capita* assessment for more members than they paid for in 1916. The figures indicate the percentage of members paid for 1917 as compared with the number paid for 1916.

	Per Cent.
Schuylkill County	110
York County	110
Bedford County	109
Delaware County	109
Huntingdon County	109
Center County	107
Crawford County	106
Dauphin County	106
Greene County	105
Luzerne County	105
Montgomery County	105
Montour County	105
Northumberland County	105
Potter County	105
Lehigh County	104
Carbon County	103
Tioga County	103
Allegheny County	102
Columbia County	102
Philadelphia County	102
Somerset County	102

THE PITTSBURGH SESSION OF THE STATE SOCIETY

The program for the Pittsburgh session is practically complete, and on paper is just as attractive or more so than any we have had before. The same general plan is to be observed as in the past. On Thursday evening the address to the public will be given by Dr. A. E. Taylor, professor of physiological chemistry at the University of Pennsylvania. Dr. Taylor is an authority on foodstuffs. Over a year ago he was sent by our state department to Germany to investigate the food conditions, particularly in the prison camps. He gained a very wide knowledge of the very efficient methods in use there for the conservation of food. His recent articles in the *Saturday Evening Post* were of extreme interest. Dr. Taylor is now in Washington helping Mr. Hoover to handle the food situation in this country.

The new section on pediatrics has prepared an exceptionally fine program. Drs. Howland and Marriott will have a paper on acidosis. Dr. Blackfan will read a paper on food anaphylaxis. In the medical section Drs. Cannon of Boston and Fischer of Cincinnati will read papers on nephritis. The surgical section is up to its usual high standard. An effort is being made to have authorities on paratyphoid and dysentery read papers. These are two particular diseases which are prone to affect soldiers in camp. The committee is positive that we should do "business as usual" in this next session. The papers will be read as planned. Members are urged to make every arrangement to attend the session as usual. J.

MEDICAL OFFICERS' RESERVE CORPS

Ten thousand physicians will be needed for the new army. Only about 4,000 are available. Pennsylvania is doing as well as any state in this particular, but has not yet done its full duty. Four physicians of the Reserve Corps are about to be detailed by Surgeon General Gorgas to tour the state and procure men for this service. It is understood that these men will start very shortly. They will be qualified to examine and recommend for commission all who wish to serve their country in this way.

PAYMENT OF PER CAPITA ASSESSMENT

The *per capita* assessment for the year 1917 has been received from component county societies since April 6, as acknowledged on pages 519-520 of the April Journal, as follows:

Apr. 7,	Allegheny	840–858, 860–904, 906–933, 935–975, 977–979	5601–5736	$382.25
Apr. 9,	Lancaster	119–128	5737–5746	27.50
	Dauphin	122–139, 140, 160	5747–5766	55.00
	Potter	20, 22–23	5767–5769	8.25
	Luzerne	162–164	5770–5772	8.25
	Bradford	45	5773	2.75
	McKean	39	5774	2.75
	Blair	88	5775	2.75
	Mercer	55	5776	2.75
	Lawrence	44–47	5777–5780	11.00
	Venango	37–38	5781–5782	5.50
	Jefferson	30–38	5783–5791	24.75
	Cumberland	30	5792	2.75
	Lackawanna	126–134	5793–5801	24.75
Apr. 10,	Luzerne	165–167	5802–5804	8.25
	Wayne	22–24	5805–5807	8.25
	Cambria	97–102	5808–5813	16.50
	Montour	21	5814	2.75
	Somerset	34	5815	2.75

	Cumberland	31	5816	2.75
	Chester	65–74	5817–5826	27.50
	Delaware	81	5827	2.75
	Montgomery	131	5828	2.75
Apr. 11,	Cumberland	32	5829	2.75
	Susquehanna	22	5830	2.75
	Berks	103–104	5831–5832	5.50
	Monroe	20–21	5833–5834	5.50
	Union	16	5835	2.75
	Warren	16–30	5836–5850	41.25
	Lawrence	48–50	5851–5853	8.25
	McKean	40–41	5854–5855	5.50
	Dauphin	141–145	5856–5860	13.75
	York	113	5861	2.75
	Westmoreland	114–121	5862–5869	22.00
	Bradford	46–47	5870–5871	5.50
	Philadelphia	1401–1550	5872–6021	412.50
	Lycoming	85–88	6022–6025	11.00
	Bedford	19–21	6026–6028	8.25
	Westmoreland	122–126	6029–6033	13.75
	Somerset	35–37	6034–6036	8.25
Apr. 12,	Venango	39–47	6037–6045	24.75
	Clearfield	67	6046	2.75
	Chester	75–79	6047–6051	13.75
	Northumberland	63–64	6052–6053	5.50
	Mifflin	27–28	6054–6055	5.50
	Luzerne	168–170	6056–6058	8.25
	Tioga	23–27	6059–6063	13.75
Apr. 13,	Monroe	22	6064	2.75
	Somerset	38–39	6065–6066	5.50
	Wayne	25–27	6067–6069	8.25
	Luzerne	171–173	6070–6072	8.25
	Lawrence	51–53	6073–6075	8.25
	Lycoming	89	6076	2.75
	Lancaster	129–130	6077–6078	5.50
	Westmoreland	127–131	6079–6083	13.75
Apr. 14,	Armstrong	62	6084	2.75
	Mercer	56–59	6085–6088	11.00
	Armstrong	60–61	6089–6090	5.50
	McKean	43	6091	2.75
	York	114	6092	2.75
	Venango	48–49	6093–6094	5.50
	Clinton	22	6095	2.75
	Cumberland	34	6096	2.75
	Bradford	48	6097	2.75
	Beaver	62–63	6098–6099	5.50
	Dauphin	146–148	6100–6102	8.25
Apr. 16,	Luzerne	174–175	6103–6104	5.50
	Mifflin	29–30	6105–6106	5.50
	Adams	23	6107	2.75
	Mercer	53	6108	2.75
	Westmoreland	132–135	6109–6112	11.00
	Jefferson	39–49	6113–6123	30.25
	Lackawanna	135–155	6124–6144	57.75
	Washington	83–105	6145–6167	63.25
	Philadelphia	1551–1692	6168–6309	390.50
Apr. 17,	Luzerne	176	6310	2.75
	Delaware	82	6311	2.75
	Lycoming	90–99	6312–6321	27.50
	Washington	106–108	6322–6324	8.25
Apr. 18,	Venango	50–51	6325–6326	5.50
	Perry	16–17	6327–6328	5.50
	Bedford	22	6329	2.75
	Cumberland	33	6330	2.75
	Cambria	103–107	6331–6335	13.75
	York	115	6336	2.75
	Franklin	42–43	6337–6338	5.00
	Washington	109–110	6339–6340	5.50
Apr. 19,	Washington	111	6341	2.75
	Luzerne	177–178	6342–6343	5.50
	Dauphin	149–150	6344–6345	5.50
	Mercer	60	6346	2.75
	Tioga	28–29	6347–6348	5.50
	Center	20–25	6349–6354	16.50
Apr. 20,	Philadelphia	1693–1710	6355–6372	49.50
	Northampton	116	6373	2.75
Apr. 21,	Wayne	28–31	6374–6377	11.00
	Delaware	83–86	6378–6381	11.00
	Clinton	23	6382	2.75
	Chester	80–82	6383–6385	8.25
	Allegheny	980–989, 991–1008	6386–6413	68.75
Apr. 23,	Fayette	110–114	6414–6418	13.75
Apr. 24,	Berks	105–108	6419–6422	11.00
	Dauphin	151	6423	2.75
	Luzerne	179–180	6424–6425	5.50
	Tioga	30	6426	2.75
Apr. 25,	Bedford	23	6427	2.75
	Snyder	15	6428	2.75
	Westmoreland	136–138	6429–6431	8.25
	Luzerne	181–182	6432–6433	5.50
	McKean	42	6434	2.75
	Elk	20–21	6435–6436	1.00
	Montgomery	132	6437	2.75
	Beaver	64	6438	2.75
	Tioga	31	6439	2.75
Apr. 26,	Westmoreland	139–140	6440–6441	5.50
Apr. 27,	Luzerne	183–188	6442–6447	16.50
	Warren	31–35	6448–6452	13.75
	Lebanon	21–25	6453–6457	13.75
	Jefferson	50–54	6458–6462	13.75
	Westmoreland	141	6463	2.75
	Northampton	117–118	6464–6465	5.50
Apr. 28,	Lawrence	54	6466	2.75
	Mercer	61–63	6467–6469	8.25
Apr. 30,	Venango	52	6470	2.75
	Juniata	11	6471	2.75
	Clinton	24	6472	2.75
May 1,	Luzerne	189	6473	2.75
	Berks	109	6474	2.75
	Warren	36–41	6475–6480	16.50
	Philadelphia	1711–1749	6481–6519	110.00
	Allegheny	1009–1030, 1034	6520–6542	63.25
May 2,	Luzerne	190	6543	2.75
	Mercer	64–65	6544–6545	5.50
May 3,	Schuylkill	96–100	6546–6550	13.75
	Luzerne	191	6551	2.75
	Center	26–28	6552–6554	8.25
May 4,	Perry	18–22	6555–6559	13.75
	Luzerne	192	6560	2.75
	Mercer	66	6561	2.75
	Westmoreland	142–143	6562–6563	5.50
	Lancaster	131	6564	2.75
	Somerset	40	6565	2.75
	Elk	22	6566	2.75
May 5,	Chester	83–85	6567–6569	8.25
	Mercer	67	6570	2.75
	York	116–123	6571–6578	22.00
May 7,	Luzerne	193	6579	2.75
	Lancaster	132	6580	2.75
	Lycoming	100	6581	2.75
	Wayne	32–33	6582–6583	5.50
May 8,	Potter	24	6584	2.75
	Tioga	32–35	6585–6588	11.00
	Franklin	44–45	6589–6590	5.50
May 9,	Luzerne	194	6591	2.75
May 10,	Bradford	49	6592	2.75
	Elk	23	6593	2.75
	Lancaster	133	6594	2.75
May 11,	Schuylkill	101	6595	2.75
May 12,	Montgomery	133	6596	2.75
	Lebanon	26	6597	2.75
	Jefferson	55–58	6598–6601	11.00
	Lycoming	101	6602	2.75
	Beaver	65–66	6603–6604	5.50
May 14,	Huntingdon	36	6605	2.75
	Luzerne	195	6606	2.75
	Butler	59	6607	2.75
	Berks	110–111	6608–6609	5.50
	Cambria	108	6610	2.75
	McKean	44–48	6611–6615	13.75

May 15,	Allegheny	1031–1033, 1035–1039	6616–6623	22.00
	Bedford	24–25	6624–6625	5.50
May 18,	Snyder	16	6626	2.75
May 22,	Washington	112–113	6627–6628	5.50
	Delaware	87	6629	2.75
	Montgomery	134	6630	2.75
	Lebanon	27–30	6631–6634	11.00
	Westmoreland	144	6635	2.75
	Franklin	46–47	6636–6637	5.50
	Lackawanna	164–179	6638–6653	44.00
May 24,	Fayette	115–116	6654–6655	5.50
	Luzerne	196	6656	2.75
	Berks	112	6657	2.75
May 25,	Philadelphia	1750–1770	6658–6678	55.00
May 28,	Somerset	41	6679	2.75
May 31,	Venango	53	6680	2.75
	Northampton	119	6681	2.75
	Carbon	31	6682	2.75
June 2,	Mercer	68	6683	2.75
June 5,	Center	29–30	6684–6685	5.50
June 6,	Lackawanna	156–160, 162–163, 180–183	6686–6696	33.00
	Philadelphia	1771–1780	6697–6706	27.50
June 7,	Crawford	48–50	6707–6709	8.25
June 8,	Dauphin	152–158	6710–6716	19.25

CHANGES IN MEMBERSHIP OF COUNTY SOCIETIES

The following changes have been reported since the May Journal was printed:

Allegheny County: *Death.*—William C. Bode (Univ. of Wurzburg, Germany, '77) in Pittsburgh, May 16, aged 70.

Beaver County: *Removal.*—Harry J. Treshler from Midland to 216 Eighth Ave., Homestead (Allegheny County).

Berks County: *New Member.*—Morris B. Oberholtzer, Boyertown.

Bradford County: *Transfer.*—Harry O. Kingsley to Tioga County Society.

Carbon County: *New Member.*—Robert A. Christman, Weissport.

Delaware County: *New Member.*—Joseph R. T. Gray, Jr., Chester.

Fayette County: *New Members.*—Thomas R. Francis, George W. Gallagher, Connellsville. *Removal.*—Henry S. Brown from Adah to 7155 Mt. Vernon St., Pittsburgh.

Franklin County: *New Members.*—Theodore Peters, Anna L. Ryder, Chambersburg.

Lackawanna County: *New Members.*—Thomas L. Alexander, Franklin F. Arndt, George B. Beach, J. Nelson Douglas, Arthur P. Gardner, Isaac Goodman, Samuel Gross, Harry M. Kraemer, John Kulczycki, Edward A. McLain, Samuel Z. Meyer, Earl H. Rebhorn, Frank R. Wheelock, Scranton; John L. Griffiths, Taylor; Frank L. Niles, Carbondale; Clarence L. Young, Peckville.

Lebanon County: *New Members.*—John B. Groh, Thomas R. Holland, Lincoln R. Light, Lebanon; David H. Warner, Prescott.

Luzerne County: *New Member.* — Leland C. Rummage, Sweet Valley.

Mercer County: *New Member.*—Henry R. L. Worrall, Greenville.

Montgomery County: *New Member.*—H. Forsythe Stapp, Pottstown.

Northampton County: *New Member.* — Asher George Ruch, South Bethlehem.

Northumberland County: *Transfer.*—George G. Gill to Wayne County Society.

Philadelphia County: *New Members.*—Frank E. Boston, Edward W. Collins, Ann Tomkins Gibson, Warren H. Johnston, Maxwell B. Kremens, Joseph D. Lehman, William Francis Monaghan, Gideon H. Patton, William C. Robinson, Hunter Watt Scarlett, Philadelphia; Lucius W. Johnson, Washington, D. C. *Death.* — Frank H. Macfarland (Univ. of Pennsylvania, '92) in Philadelphia, May 20, aged 49. *Removals.*—Kenneth S. Guthrie from Brooklyn to 292 Henry St., New York City; George H. Shuman from Philadelphia to 1004 E. E. Trust Bldg., Pittsburgh; Annie Young from Boston to 2023 North College Ave., Philadelphia.

Potter County: *New Member.* — Franklin P. Farwell, Galeton.

Schuylkill County: *Removal.*—A. M. Bergstein from Pottsville to Amsbry (Cambria County).

Somerset County: *New Member.*—Richard T. Pollard, Garrett.

Tioga County: *New Member.*—Harry O. Kingsley, Mansfield (by transfer from Bradford County Society).

Venango County: *New Member.*—Alexander M. Brown, Franklin.

Washington County: *New Members.*—Oscar T. McDonough, Washington; Joseph McElroy, Hickory. *Death.*—William Reed Thompson (Jefferson Med. Coll., '67) in Washington, May 17, from injuries received from being struck by an automobile, aged 81.

Wayne County: *New Member.*—George G. Gill, Waymart (by transfer from Northumberland County Society). *Death.*—Patrick F. Griffin (Jefferson Med. Coll., '86) in Honesdale May 27, from heart disease, aged 53.

Westmoreland County: *New Member.*—Elmer E. McAdoo, Ligonier.

STATE NEWS ITEMS

MARRIED

Dr. John B. Frick and Miss Ardis M. Tanquay, both of Philadelphia, May 3.

Dr. Woods Frederick Derr, Williamsport, and Miss Sara Wolf, Chambersburg, April 6.

Dr. Eugene Elgin, East Berlin, and Miss Celia Oneda Shriver, in Hanover, April 10.

Dr. Silas D. Molyneux, Sayre, and Miss Sara Sawtelle, Binghamton, N. Y., June 14.

Dr. William A. Swalm and Miss Marion Dwenger Fisher, both of Philadelphia, April 18.

Dr. Frederick Walker St. Clair and Miss Loretta Louise Grant, both of Indiana, March 31.

Dr. John Edward Gillespie Beardsley and Miss Minerva Post, both of Philadelphia, April 30.

Dr. Barton K. Thomas, Pottstown, and Miss Florence B. Nichols, in Rahn's Hill, May 10.

Dr. Arthur H. Hopkins, Philadelphia, and Miss Martha Porter Carrington, Charleston, S. C., April 10.

Dr. A. Weise Hammer and Miss Helen Daniel Van Nostrand, both of Philadelphia, in Atlantic City, April 14.

DIED

Dr. George P. King (Jefferson Med. Coll., '79) in Lancaster, May 14, aged 59.

Dr. Joseph L. Thistle (Jefferson Med. Coll., '86) in Washington, May 5, aged 62.

Dr. Nathan W. Stroup (Univ. of Pennsylvania, '68) in Harrisburg, April 1, aged 74.

Dr. Joseph D. Zimmerman (Univ. of Pennsylvania, '71) in Lebanon, March 22, aged 72.

Dr. Charles M. Matson (license, Jefferson County, Pa., '77) in Brookville, March 27, aged 83.

Dr. Joseph Spratt Dodds (Jefferson Med. Coll., '75) in Pittsburgh, April 18, from pneumonia, aged 70.

Dr. Harry F. Kilty (Medico-Chirurgical Coll., Philadelphia, '11) in Shenandoah, May 5, aged 28.

Dr. Francis Eugene Harpel (Hahnemann Med. Coll., Philadelphia, '71) in Danville, April 3, aged 72.

Dr. James Sibbald (Jefferson Med. Coll., '81) in Philadelphia, March 30, from heart disease, aged 57.

Dr. Theodore Louis Adams (Hahnemann Med. Coll., Philadelphia, '80) in Philadelphia, April 12, aged 59.

Dr. Herbert E. Aldrich (Hahnemann Med. Coll. & Hosp., Philadelphia, '83) in Philadelphia, May 10, aged 61.

Dr. Louis P. Posey (Hahnemann Med. Coll. & Hosp., Philadelphia, '83) in Philadelphia, May 15, aged 54.

Dr. Francis M. Finley (Coll. of Physicians and Surgeons, Baltimore, '95) in Finleyville, April 2, aged 84.

Dr. Edward C. Thomas (Hahnemann Med. Coll. & Hosp., Philadelphia, '92) in Philadelphia, May 13, aged 58.

Dr. Joseph Moorehead Taylor (Coll. of Phys. and Surg., Baltimore, '85) in Altoona, January 17, from heart disease.

Dr. Clyde Ammon Peters (Jefferson Med. Coll., '15) in Bloomsburg, March 8, from nervous breakdown, aged 23.

Dr. Benjamin J. Rudderow (Univ. of Pennsylvania, '74) in Philadelphia, May 18, from acute indigestion, aged 68.

Dr. Jonathan R. Umsted (Jefferson Med. Coll., '88) in Quakertown, May 15, from a complication of diseases, aged 53.

Dr. Isaac Crowther (Hahnemann Med. Coll. & Hosp., Philadelphia, '80) in Chester, March 21, from heart disease, aged 59.

Dr. Hugh Austin Pinson (Atlanta, Ga., Med. Coll., '15) in Pittsburgh, March 27, after an operation for appendicitis, aged 33.

Dr. John Franklin Flint (Univ. of Michigan, Homeopathic Med. Coll., Ann Arbor, '81) in Erie, April 5, from influenza, aged 74.

Dr. Alfred J. Hamilton (Univ. of Michigan Med. School, Ann Arbor, '70) in Cassville, May 5, from cancer of the bladder, aged 71.

Dr. John H. Donnell (Univ. of Pennsylvania, '92) of Tarentum, was crushed to death by a Pennsylvania train at that place, May 16, aged 54.

Dr. Thomas C. Fitzsimmons (Bellevue Hosp. Med. Coll. & Hosp., '84) of Waymart, in Philadelphia, May 17, following an operation for internal trouble, aged 59.

ITEMS

Dr. E. W. Meredith, Pittsburgh, has been commissioned First Lieutenant in the Medical Reserve Corps.

Dr. Alonzo Englebert Taylor, Philadelphia, has been elected to membership in the American Philosophical Society.

Five Chester Hospital Physicians have enlisted in the service of the United States and will leave shortly for France.

Dr. Daniel E. Sable, Pittsburgh, has been appointed major in the Medical Corps and assigned to the First Artillery.

Dr. DeForrest P. Willard, Lansdowne, has joined the Orthopedic Unit of the U. S. Army, and will be commissioned a captain.

Dr. and Mrs. John M. Sheedy, Altoona, are giving to their country their four sons. It is likely all four will receive commissions.

Dr. Judson Daland has been elected emeritus professor of clinical medicine in the Philadelphia Polyclinic for Graduates in Medicine.

Dr. Carson Coover, Harrisburg, has been commissioned as first lieutenant in the Medical Reserve Corps, and ordered to Fort Oglethorpe, Georgia.

Dr. Eugene Swayne, Philadelphia, has been appointed a major in the Medical Corps and assigned to command Field Hospital No. 3, Philadelphia.

Dr. Walter R. Krauss, First Assistant at Fairview Hospital for the Insane, will act as head of the institution until a successor to Dr. Fitzsimmons is appointed.

The Woman's Medical College of Pennsylvania held its sixty-fifth annual commencement in Garrick Theater, June 6. Dr. John Chalmers DaCosta delivered the address.

Dr. Samuel Calvin Smith has returned to Philadelphia after spending some time in Boston in special work in graphic methods for the clinical recognition of heart disease.

The Physicians of Perry County, commencing June 1, will raise their prices. A new rate card has been issued under the names of the president and secretary of the county society.

Dr. B. Franklin Royer, Harrisburg, has been appointed a captain in the Medical Officers' Reserve Corps of the U. S. Army, and authorized to conduct examinations for applicants.

Medical Reserve Corps.—Seven hundred Philadelphia doctors have made application for the Medical Reserve Corps and about fifty of them have already been slated to go to France in June.

Dr. Edward E. Montgomery has retired from the chair of gynecology in Jefferson Medical College, and from the position of gynecologist to Jefferson Hospital, after a service of twenty-five years.

Dr. Howard C. Frontz, Huntingdon, delivered the address at the Seventh Commencement of the Lewistown Hospital Training School for Nurses, April 17, and Dr. A. S. Harshberger presented the diplomas.

Lackawanna County Physicians Volunteer.—Fifty physicians from Lackawanna County, all members of the county medical society, on May 6, volunteered to enlist in the medical reserves of the U. S. Army.

Dr. Christian B. Longenecker has been appointed editor of the *Weekly Roster*, the official bulletin of the Philadelphia County Medical Society, to succeed Dr. A. B. Hirsh, who founded the *Weekly Roster* twelve years ago.

The Women of the Pennsylvania Society in New York City have contributed $12,000 to endow two beds in the American Field Ambulance Hospital in Paris, and the beds will be named for Hannah Penn and Lucretia Mott.

The Milk Commission of Allegheny County, at its annual meeting, elected the following officers: Chairman, Dr. A. S. Daggette; vice chairman, Dr. Marcus Spiro; treasurer, Dr. W. A. Wycoff; secretary, Dr. Luba Robin Goldsmith.

Berks County Physicians Volunteer. — Forty-eight physicians from Berks County volunteered their services for the Medical Reserve Corps, and on May 16 thirty-eight of this number were ordered to report in Philadelphia for examination for commissions in the Officers' Reserve Corps.

The National Conference of Charities and Correction held its forty-fourth annual meeting in Pittsburgh, June 6 to 13. Mr. Herbert C. Hoover and other speakers of international authority were on the program to speak on "Social Problems of the War."

Examinations for Medical Licensure. — The Bureau of Medical Education and Licensure announces that the examinations will not be delayed, but will take place as scheduled on July 10, 11 and 12, 1917, in Philadelphia at 808 Locust Street; in Pittsburgh at Pennsylvania Hall, corner of Boquet and Allequippa Streets.

Dr. J. B. Carnett, Philadelphia, has succeeded Dr. Edward Martin as director of the University Base Hospital which is being prepared for quick removal to the western front in France. Dr. Martin, head of the department of surgery, turned over the directorship of the base to Dr. Carnett when he was informed by the trustees that the heads of the departments were requested to remain at the university so that educational work, especially of the medical school, would go on through the period of the war.

Dr. James Tyson, formerly professor of medicine in University of Pennsylvania, has retired from the practice of medicine after fifty-four years of active work. A testimonial dinner was given in his honor by the Philadelphia County Medical Society on May 16. Dr. Hobard A. Hare acted as toastmaster and addresses were made by Dr.. Henry D. Jump, president of the Philadelphia County Medical Society; Dr. Abraham Jacobi, New York; Dr. William H. Welch, Baltimore; Dr. James W. Holland, and Dr. Edward Martin.

Why We Lose Out in Legislation.—Three other physicians and this editor appeared at a hearing in the Pennsylvania legislature in advocacy of important amendments to the Workman's Compensation Law. Four other physicians were present as spectators. But the opposition—railroad and corporate interests, insurance company representatives and others—filled the large hall to the doors, and they had trained lawyers and business experts to urge their side. They made a great and impressive showing. We lonely four did the best we could. When will the medical profession learn to look after its own interests? No wonder we lose out in legislation.—Editorial in *Medical Council.*

Examining Boards for Medical Reserve Corps.— The following medical boards in Pennsylvania have been appointed up to May 21. The name and address of the chairman only is given. Harrisburg, Capt. Benjamin F. Royer, M. R. C., Donaldson Apts.; Philadelphia, Lieut. Col. Henry Page, M. C., Aldine Hotel (special only); Philadelphia, Major Elijah H. Siter, M. R. C., 1818 S. Rittenhouse Sq., President; Pittsburgh, Major John W. Boyce, M. R. C., Empire Bldg., President; Scranton, Lieut. J. Mayhew Wainwright, 516 Spruce St.

The Jefferson Unit.—One hundred and fifty college graduates, students, business and professional men make up the lay contingent of the Jefferson Base Hospital Unit preparing to go to the front in France. These men, all educated and refined, and many of them earning large sums, will serve as cooks, stretcher bearers, drivers and orderlies. For this they will receive $15 per month. Besides these there will be twenty-five doctors and fifty nurses, with a reserve of fifteen nurses. One of the lay members is a graduate of Yale, taking a postgraduate course at the University of Pennsylvania.

The Philadelphia County Medical Society, at a special meeting, April 4, adopted the following resolution, which on motion was forwarded to the President of the United States:

> In view of the fact that the President of the United States has declared that a state of war has existed and now exists between this country and the government of Germany, because of the latter government's hostile acts in sinking American vessels and destroying American lives and because it is our belief that the President of the United States has taken a lofty position for the defense of right and freedom and has denied that our country is seeking by any selfish act her own enrichment in any way and because we believe that it is a patriotic duty of every citizen to volunteer his services to the government in whatever capacity he can best serve that government, be it therefore
>
> *Resolved,* That we, members of the Philadelphia County Medical Society, to the number of nearly 2,000, do hereby unqualifiedly endorse to the full the President's recent message, and do as a body offer ourselves for service in any field into which we shall be called.

War Hospital Camp Sites.—Dr. Samuel G. Dixon, State Commissioner of Health, following a survey made at the request of the State Public Safety Committee, has selected tentatively the following fifteen sites for military hospital camps: A 60-acre plot adjoining the filtration plant at Torresdale and an 800-acre section on the Byberry Farms tract, for Philadelphia County; 75 acres on the grounds of the State Insane Hospital at Norristown; 50 acres at the Eastern State Institution for Feebleminded at Spring City; 75 acres at the State Sanatorium for Tubercular Patients at Hamburg; 125 acres and buildings occupied by the State Hospital for Chronic Insane at Wernersville; 73 acres at York; 100 acres at Greenville; 75 acres near Altoona; 100 acres at Chambersburg; 3 farm locations at Bristol; 3 at Chester; 3 sites at Harrisburg, including Reservoir Park, Insane Hospital grounds and circus plot; vacated buildings and grounds of North Side City Home, Pittsburgh; 50 acres at State Home for Indigent Women, Muncy; 50 acres at State Hospital for the Insane at Danville.

Military and Naval Preparedness in the County Medical Society.—In order to be in a position intelligently to aid the government and advise the members of the society, the Committee on Naval and Military Preparedness of the Philadelphia County Society issued a questionnaire which was sent to every member of the society and the answers have been tabulated and the results forwarded to the offices of the

Surgeons General of the Navy and Army and are open to the inspection of the State Defense League as well. The function of the committee is not only to determine which of the men are willing to go and are most fit for service, but also to exercise to some extent supervision over the home work as well. For instance, it is most undesirable that either all or too great a proportion of specialists should accept active service and not leave a sufficient number to take care of the special diseases at home. As far as the government will permit, therefore, the committee will attempt to assume a function of paternalism in this matter and yet stands first and foremost for the enlistment of every physician who can help the government, providing he does not leave a gap that it is impossible to fill at home.

Report of January Examinations.—Dr. N. C. Schaeffer, secretary of the Pennsylvania Bureau of Medical Education and Licensure, reports the written examination held at Philadelphia, Jan. 9-11, 1917. The total number of subjects examined in was 5; total number of questions asked, 50; percentage required to pass, 75. The total number of candidates examined was 71, of whom 66 passed and 5 failed. The following colleges were represented:

College	Year Grad.	Total No. Licensed
PASSED		
University of Louisville	(1911)	1
Coll. of Phys. and Surgs., Baltimore	(1914) (1915)	2
Eastern University	(1913)	1
Johns Hopkins University	(1914)	1
University of Maryland	(1915)	1
Columbia University	(1912)	1
N. Y. Homeo. Med. Coll. and Flower Hosp.	(1915)	1
University of Buffalo	(1913) (1914)	2
Eclectic Medical College	(1915)	2
Western Reserve University	(1915)	1
Jefferson Med. Coll. of Phila.	(1914, 7) (1915, 15)	22
Medico-Chir. Coll. of Phila.	(1914, 1) (1915, 14)	15
Temple University	(1914) (1915, 5)	6
University of Penna.	(1913) (1914, 2) (1915, 3)	6
University of Pittsburgh	(1915)	1
Woman's Medical College of Pennsylvania	(1915)	2
Medical College of Virginia	(1915)	1
FAILED		
College of Physicians and Surgeons, Baltimore	(1915)	69.2
Maryland Medical College	(1912)	52, 70.8
Jefferson Medical College of Philadelphia	(1915)	71.4
Medico-Chirurgical College of Philadelphia	(1915)	71.8

GENERAL NEWS ITEMS

The American Pediatric Society held its twenty-ninth annual meeting at White Sulphur Springs, W. Va., May 28-30.

The Medical Society of the State of California, at its annual meeting at San Diego, April 18, elected as officers Drs. J. H. Barbat, San Francisco, president; Dr. Saxton T. Pope, secretary-treasurer.

The Illinois State Medical Society held its sixty-seventh annual meeting in Bloomington, May 15 to 17. Springfield was selected as the place for next meeting. Dr. Elmer B. Cooley, Danville, was elected president, and Dr. Wilbut H. Gilmore, Mt. Vernon, secretary.

Base Hospital Ordered Abroad.—Base Hospital, No. 12, Northwestern University Medical School, Chicago. Commanding Officer, Major Christopher C. Collins, Medical Department, U. S. Army. Director, Dr. F. A. Besley, Chicago. Drs. Milton Mandl, Kellogg Speed, Payson L. Nusbaum, M. R. Chase, Walter Nadler, Philip M. Dale, Summer L. Koch, Adam G. Sherman, J. J. Lebovitz, Walter L. Strandberg, John K. Bird, S. W. Clark, C. W. Freeman, Philip L. Glaspel, William E. Harwood, Gerard N. Krost, Eugene F. Talbot, C. W. Robertson, A. H. Barnett, John Ross Neal, Robert W. Baker, Robert W. Eaton, John Henkin and Erling O. Ravn.

Whitney Drug Bill Signed.—Governor Whitman of New York has signed the Whitney committee's bill strengthening the law controlling the sale and distribution of habit forming drugs and providing that state health authorities may issue small amounts of narcotics in an effort to cure addicts.

Dr. Hugh K. Young, director of the James B. Brady Urological Institute at Johns Hopkins Hospital, has received notification of his appointment as major in the Medical Reserve Corps and will leave in a few days for France. With him will go a staff of surgeons who have specialized in urology and an equipment of nurses.

Alienists and Neurologists will hold their annual meeting July 9 to 12, in LaSalle Hotel, Chicago, under the auspices of the Chicago Medical Society. Dr. George A. Zeller will act as chairman. Contributors to the program are solicited. There are no membership fees. Address Secretary A. & N., Room 1218, 30 N. Michigan Ave., Chicago.

Dr. Eugene Lyman Fisk, Medical Director of the Life Extension Institute, 25 West Forty-Fifth Street, New York City, has been appointed a member of the Subcommittee on Alcohol of the Committee on Hygiene and Sanitation of the General Medical Board of the Council of National Defense, of which Surgeon General Rupert Blue is chairman.

Medical Plattsburgs.—Four big medical training camps are to open June 1, at which thousands of young doctors will be trained to take care of the health of hundreds of thousands of young men called to the colors. These camps will be at Fort Benjamin Harrison, Indiana; Fort Riley, Kansas; Fort Oglethorpe, Georgia, and Mineral Springs, Texas.

Two New Products are Chlorazene (Abbott), Dakin's new antiseptic, and Parresine (Abbott), the improved, hot-wax dressing for burns. Both of these remedial agents have been passed by the Council on Pharmacy and Chemistry of the American Medical Association, to appear in their "New and Nonofficial Remedies," and have been ordered by the United States Navy to be placed on every ship.

Army Units Reach England.—Base Hospital, No. 4, Cleveland, commanded by Major Harry L. Gilchrist, M. C., and under the direction of Dr. George W. Crile, reached England on May 18. The Harvard Medical Unit, Base Hospital, No. 5, arrived in England May 22. This unit is commanded by Major Robert U. Patterson, M. C., with Dr. Harvey Cushing as director. Another contingent of the American Medical Corps arrived in England May 28, which comprised units from Philadelphia and St. Louis.

Council on Pharmacy and Chemistry.—During May the following articles were accepted for inclusion with New and Nonofficial Remedies: Calcium cacodylate, thorium nitrate, thorium sodium citrate solution, thorium sodium citrate solution, stronger. Nonproprietary articles: Chlorazene surgical cream, Abbott Laboratories; betanaphthol benzoate, Anthony-Hammond Chemical Works; kephalin - Armour, Armour and Company; Borcherdt's malt extract with cascara sagrada, Borcherdt's malt extract with cod liver oil, Borcherdt's malt extract with creosote, Borcherdt Malt Extract Company; thorium solution for pyelography, H. W. and D., 10 per cent., and 15 per cent., sterile ampuls of mercury salicylate, 1½ grains, and 2 grains, Hynson, Westcott and Dunning; ampuls calcium cacodylate solution-Mulford, H. K. Mulford Company; diarsenol, Synthetic Drug Company.

RESOLUTIONS AGAINST USE OF MORPHIN IN CHINA. —At a joint conference of the National Medical Association and the China Medical Missionary Association held recently, a resolution was adopted placing on record the conclusions of the conference that the uncontrolled use of morphin will do far more harm to China than was ever done by opium. It was stated that this imminent danger can be averted only by the Chinese government enforcing without delay the provisions of the Hague Opium Convention so as to confine the employment of morphin to legitimate medical uses.

MEDICAL SCHOOLS COOPERATE WITH THE NAVY.—The Jefferson Medical College, Philadelphia, and the Medical Department of Harvard University and the Boston City Hospital, Boston, have tendered to the surgeon-general of the navy the facilities at their disposal, for the special training of physicians who are about to enter the Medical Corps of the Navy. Their offers have been accepted, and plans are being made to conduct at the institutions named special courses of instruction for physicians who have passed their examinations for admission to the regular medical service of the navy.

HEALTH INSURANCE VS. SICKNESS INSURANCE.—The Conference of State and Territorial Health Officers with the United States Public Health Service, which met, April 30, in Washington, D. C., adopted the following resolution defining its attitude in relation to health insurance and sickness insurance:

Resolved, That in the judgment of this conference the use of the phrase "health insurance" to describe a system of sickness relief that makes no specific, positive, and definite provision for the conservation of health is liable to endanger the efficiency of existing health agencies and to retard their further development.

Resolved, That in any scheme for health insurance all activities looking toward the active conservation and promotion of health should be entrusted to the regularly established health conservation agencies, which should be reorganized or reinforced for that purpose, if necessary.

BUREAU OF MEDICAL EDUCATION AND LICENSURE

MEMBERS BY APPOINTMENT

JOHN M. BALDY, Pres., 2219 DeLancey St., Philadelphia.
DANIEL P. MADDUX, Chester.
IRVIN D. METZGER, Pittsburgh.
CALVIN L. JOHNSTONBAUGH, Bethlehem.
ADOLPH KOENIG, Pittsburgh.

MEMBERS EX-OFFICIO.

NATHAN C. SCHAEFFER, Sec., Dept. of Pub. Inst., Harrisburg.
SAMUEL G. DIXON, Harrisburg.

RESOLUTION PERTAINING TO MEDICAL PREPAREDNESS

WHEREAS, The Medical Board of the Council of National Defense has announced it to be unnecessary to hasten the admission of medical students into service, and that it considers such a policy to be hazardous to the future welfare of medical education, were such methods pursued; and,

WHEREAS, The patriotic duties of our citizenship are performed quite as effectively, and in many cases more so, by the pursuit of their several courses of preparedness without interruption; and,

WHEREAS, The Navy, from which originated the desire to hasten the courses of study in medical schools so as to secure more surgeons, now gives evidence that its deficit has been met and at the present time does not require additional surgeons; and,

WHEREAS, The Army regulations are such as to prevent the admission to the Army of any surgeon who has not qualified for license in his state, which, in Pennsylvania, means four years of medical education secured in four different calendar years, with the addition of an uninterrupted year of hospital internship; and,

WHEREAS, Evidence at hand justifies the belief that the faithful pursuit of the medical studies on the part of any medical student will exempt such student from conscription to the service; and,

WHEREAS, Such a speeding up system of medical studies would in a short time demoralize the sequence of medical graduates and thus prevent the necessary normal supply of physicians to the service as well as to civil life and hospitals; therefore, be it

Resolved, That the Bureau of Medical Education and Licensure at the present time declines to accept any modification in the requirements in medical education as demanded by the laws of the state of Pennsylvania.

SOCIETIES

WILLS HOSPITAL OPHTHALMIC SOCIETY

Meeting of March 6, 1917

SECONDARY GLAUCOMA. Dr. P. N. K. Schwenk showed a third case caused, in his opinion, by a hyperreactive cataract. He first saw this case in October, 1906, when there was a cataract in the left eye and the right eye had 6/9 vision with correction. Right eye showed incipient lens haziness. On Oct. 11, 1916, the left eye became inflamed, cornea steamy, pericorneal zone injected, pupil small. Atropin and antirheumatic remedies were given. On October 26 the eye appeared much improved. On November 8 severe pains developed, eye became injected, and tension was plus two. Atropin was discontinued. December 5, Dr. Schwenk advised removal of lens, posterior sclerotomy, and iridectomy. Patient was admitted to hospital. History was obtained revealing loss of vision in left eye for past ten years. No pain until a few weeks ago, since which time pain has been more or less constant. Left eye shows injection of the deep ciliary vessels and pericorneal zone, cornea dull, iris discolored. Pupil small and fixed, greenish reflex. Lens cataractous, no fundus reflex. Right eye shows incipient cataract. On December 7, a posterior sclerotomy, iridectomy, and lens extraction was performed. December 16 the corneal wound had healed and pillars of iris were free. December 20, eye quiet. Vision with + 9.00 = + 4.00 axis 180, was 6/12.

Dr. Schwenk presented this case as being unique in that there was little hope of visual improvement, the operation being done for the relief of the inflammatory symptoms. He considers that the hyperreactive lens causes a chemical irritation which gives rise to a condition simulating glaucoma. It is his opinion that removal of the lens alone would ameliorate this condition. An iridectomy alone would be ineffectual. Therefore, in all cases of secondary glaucoma an iridectomy with lens extraction is the proper procedure.

Dr. Schwenk showed a girl, 6 years of age, having bilateral staphyloma of the cornea caused by scalding with hot water. The face is uninjured. The right eye shows a small rim of iris in upper part of cornea. The left cornea is so bulged forward as to render closure of the lids impossible. An iridectomy is indicated in the right eye. The left eye should be enucleated.

Interstitial Keratitis. Dr. William Campbell Posey showed three cases: (1) In a tubercular girl, in whom the inflammation had invaded but one eye and had yielded rapidly to the hypodermic administration of old tuberculin. The general health of the patient had also improved greatly. (2) In a boy, the subject of inherited lues. Both eyes were characteristically affected, the disease yielding slowly to mercurial inunctions. (3) In a girl with hereditary syphilis. Mercurial inunctions seemed to have availed nothing. When first treated right eye alone was affected, fellow eye being attacked three weeks later, despite mercury. Salvarsan was twice administered, beneficial effect appearing in one week after last dosage.

Secondary Glaucoma. Dr. Posey also showed a girl with secondary glaucoma, with large staphyloma of cornea following perforating ulcer, the result of granular conjunctivitis. The girl had been under his care from childhood and an iridectomy done at that time had been the means of conserving some vision until recently. His present attempt was to flatten the apex of the staphyloma, which had become a source of irritation to the upper lid, by caustics.

Dr. Posey said that he was unable to subscribe to Dr. Schwenk's views in regard to the causation of glaucoma. Years ago operators had vainly endeavored to reduce tension by removal of the lens, but as far as he knew, no one now practiced this procedure. When glaucoma arises in complication with cataract, the increase in tension is due to some mechanical hindrance to the escape of fluid from the angle of the anterior chamber and is not due, in his opinion, as claimed by Dr. Schwenk, to a chemical irritation provoked by the lens substance.

Ionization Treatment of Cancer of the Eyelids. Dr G. Betton Massey (by invitation) presented this subject. He showed two cases of extensive epithelioma of the orbit under treatment by zinc ionization with apparently promising results, and reported a series of eleven cases of epithelioma and one of endothelioma of the eyelids and adjacent parts that had been treated by zinc ionization during the past eleven years, all but one of which had resulted in eradication. Nine of these had been well more than three years. He regarded the zinc ionization method with the unipolar technic to be peculiarly well adapted to small malignant growths in these situations because of the ease with which low volt direct currents may be handled. For larger growths the bipolar technic was more effective, as we may then conjoin the cooking effect of a heavy current developing heat within the growth itself as an adjuvant to the destructive action of the ionization. These methods are bloodless, and result in sealing the absorbents at the edges of the destroyed area, thus preventing operative re-infection.

Dr. Massey also reported six cases of inoperable. recurrent malignant growths of the orbital cavity that had followed enucleation of the eye for malignant disease. These had been placed under some form of zinc ionization during the past twenty years, resulting in one operative death and only palliation in the remaining cases. The more recent bipolar technic may yield better results in cases in which the disease has not passed beyond the orbital foramen.

Beren's Operation for Symblepharon. Dr. William Zentmayer presented a patient on whom he had performed this operation. There was a rather broad adhesion between the lid and the cornea at the position of an adherent cicatrix. The operation consists in dividing the band at its middle and tying sutures which have been made to transfix the band at the position of its two points of origin, across the face of the cut ends. This operates to turn the raw edges inwards.

Dr. Zentmayer also presented a patient on whom the Kuhnt-Heisrath operation had been performed. There was an infected ulcer of the cornea with a small Descemetcele. Despite the threatened perforation steady improvement followed the operation on the lids and almost complete healing has resulted.

Detached Retina. Dr. Burton Chance exhibited a case in a little boy of 5, from the fundus of whose right eye, at about Christmas time, was noticed a whitish glare. The child had been healthy except for an attack of measles which had lasted, so the parents thought, longer than other cases they knew of, and, on July 4 of last year he fell down steps striking the back of his head, which fall did not, however, give rise to any special symptoms. When examined January 20, the pupil was fully dilated, evidently from the use of a solution by the family physician. In the lower half of the vitreous chamber there is a broad detachment of the retina, which does not tremble on movement of the globe, and it was quite translucent when illuminated. There are no evidences of iridocyclitis, but a strange "wisp" of vessels extends across the cornea from the upper limbus. The child has been under observation, weekly; the conditions have not changed, and he is in good health. The eye is neither painful nor tender. The tension did not at first seem to be increased, but today, it is distinctly greater than is the tension of the fellow eye.

Extensive Atrophy of the Choroid. Dr. Chance exhibited a case in a man of about 70, who has been in good health, and in whom the Wassermann reaction is negative. There has been nothing in his business that would give rise to such atrophy. Here and there, large surfaces of the sclera are seen. There is but little secondary pigmentation. The macular region is intact, and the corrected visual acuity equals 6/30.

Angioma of the Orbit. Dr. Chance showed the operative results in the case which has been already shown to the society. In its dissection the angioma was found to be circumscribed. The superior and external rectus muscles were involved in the mass, and their attachments had to be sacrificed. Much blood was lost, so that the patient is anemic, and has been feverish for the past three days. On attempting to rotate the globe, distinct pulsation is noticed, which pulsation causes us to entertain the idea that there might be some disorder of the orbital vessels.

Harold W. How, Secretary.

COUNTY SOCIETY REPORTS

MIFFLIN—APRIL

The Mifflin County Society met April 5 at 11 a. m. A revised fee bill, to become effective April 9, was unanimously adopted.

After dinner had been served the members assembled in the State Tuberculosis Dispensary where Dr. W. G. Turnbull, Medical Director of the Cresson State Sanatorium, addressed the society on the "Diagnosis of Tuberculosis," and followed his talk by an exhibition of cases. He believes that tuberculous patients receive their primary infection during infancy or early childhood. He emphasized the importance of an early diagnosis which can be made only from the symptoms. An accurate temperature record should be kept by the patient. A temperature of 98 F. or above, which is obtained before rising, is to be considered too high, and this, with a slight elevation in the afternoon or evening, is a valuable aid in the diagnosis. The next important symptom, and one which is almost pathognomonic, is a sudden hemorrhage or expectoration of blood-streaked sputum. Other symptoms, such as a tendency to fatigue readily, reflex abdominal and chest pains, may also be present before any physical signs occur in the lungs. Dr. Turnbull stated that a case of tuberculosis in its incipiency without physical signs, as found in the chest, should be looked on with a greater degree of seriousness than a case in which marked physical signs have been present for a long time, and in which the focus of infection has limited itself and a certain degree of immunity is already established. The early cases are better suited to sanatorium treatment and yield more satisfactory results from such treatment. Paul M. Allis, Reporter.

PHILADELPHIA—FEBRUARY

The Philadelphia County Society met February 28, at 8:30 p. m., with President Jump in the chair, and presented a symposium on Backache.

"As Viewed by the Internist" was presented by Dr. Joseph Sailer. There are very few conditions in which under some circumstances backache might not occur. The first step in diagnosis is a careful history and description of the condition and of the character of the pain. Exceedingly important is the question of the association of pain in other parts of the body. The patient will usually understate rather than overstate the duration of pain. In examination it is absolutely necessary that the patient be stripped. Often the presence of an eruption will determine the nature of the condition. This is particularly true of herpes zoster. Next in importance to the inspection of the back is the use of the Roentgen ray by which it is possible to detect disease of the spinal column, also disease in situations other than the back yet causing backache. In the occipital region pain may be caused by suboccipital neuritis; brain tumor, especially cerebellar; meningitis; disease of the sphenopalatine ganglion; eyestrain; ear disease. Frequently in the occipital region we find pain associated with infectious disease. The pain which occurs in the shoulder girdle is sometimes very severe and is due to a great variety of causes: disease of the cervical or upper dorsal spine, tumor of the spinal cord, aortic disease, brain tumor, meningitis. Pain in the shoulders is sometimes unilateral. It may occur in either shoulder in brachial neuritis, in intercostal neuritis, in diaphragmatic pleurisy, in disease of the lungs and pleura, particularly in the neighborhood of the apex; is common in subclavian aneurysm, in bursitis, osteomyelitis of the shoulder. On the right side pain occurs in the shoulder in disease of gallbladder and sometimes in disease of the liver; on the left side in pylorospasm, ulcer of the stomach, aneurysm of descending aorta and in diaphragmatic hernia. In the dorsal region of the spinal cord we find also a considerable group of diseases of which backache is a symptom. Among the most important are secondary malignant tumors of the spine, osteosarcoma, esophageal disease. In the lumbar region also we find pain due to abdominal aneurysm, lumbar abscess (psoas), anemia, pregnancy, retroperitoneal sarcoma, bladder and rectal disease, uterine and ovarian disease and to constipation. Pain is also present in postoperative conditions sometimes due to faulty position on the table.

"Backache from an Orthopedic Standpoint" was given by Dr. Gwilym G. Davis. The especial causes of backache may be divided into, at least, three classes: Traumatism, infection, and gastro-intestinal conditions. In the presence of an evident and active cause there may be other conditions which influence the symptoms present; for example, a sprain of the back occurring in a rheumatoid condition. Here both the traumatism and the medical condition require treatment. Of the strictly orthopedic conditions causing backache all may be included under the term traumatism. This comprises actual blows, muscular strains, sprains of the joints and strains due to static changes involving disturbances of the body balance due to weakness, etc., of the lower extremities. While actual blows seldom cause backache there must be borne in mind the possibility of such injury being the starting point of tuberculosis and Roentgen-ray examination is here indicated. In obscure cases the patient should be examined to ascertain whether there is serious deformities of the limbs and whether the feet are properly shod. Persons suffering from habitual constipation are especially liable to backache. Among other sources of bachache may be mentioned disease of the kidneys and uterus and malignant disease of the spine. No matter what the cause of the backache, a certain amount of support is usually of service, but curative only when the cause is local. The general condition must receive attention. Massage and exercises in osteo-arthritic conditions are to be avoided. People who are generally miserable and run down are very apt to attribute their troubles to the back and in such patients hygienic, in addition to supporting, measures are required. There is scarcely a single measure to which a physician can resort in these painful backs which will be of more practical service than some form of support.

"The Gyncological Aspects of Backache" was given by Dr. Catharine Macfarlane. The results of a study of 983 gynecological case histories show that in 16 per cent. backache was mentioned as a prominent symptom. The pelvic findings of these 159 cases of backache were analyzed and found to comprise chiefly lacerations, retroversions, prolapse and inflammatory conditions such as adherent appendages and endocervicitis. The incidence of marked nervousness in these 159 patients with backache was about 9.5 per cent. or about equal to the incidence of adherent appendages, and half as frequent as that of prolapsus uteri. It would seem that the neurasthenic state predisposes to backache of pelvic origin by lowering the resistance of the central nervous system. The fact that the backache in many of the reported cases was permanently relieved by appropriate gynecological treatment compelled belief that these backaches were caused by the pelvic condition. The mode of production of backache is explained by the theory of referred pain. The diagnostic features of pelvic backache are that the pain is sacral or lumbosacral, is apt to be aggravated by the menstrual period, and is usually associated with objective symptoms of pelvic disease. Neurotic patients with purely subjective symptoms must be handled with great care, and caution exercised to avoid unduly emphasizing some trifling gynecological condition which might merely co-exist.

"Backache as Seen by the Neurologist" was given by Dr. M. H. Bochroch. It is impossible to make a definite or clear-cut diagnosis of a spinal affection from pains in the back, either of functional or organic disease. Neither the location, character nor the intensity of the pains will justify it. They are merely the sign-posts which point the way for deeper investigation. In conjunction with pains in the back there must be an investigation especially of the significant organic reflexes, a searching history of the case in all its phases and a separation and intelligent interpretation of the objective from the subjective symptoms. Then will a rational diagnosis be possible.

Dr. Harry Hudson, discussing: Constipation as a cause of backache deserves more than passing mention. In the Samaritan Hospital we have frequently seen cases of supposed back trouble in which there is packing of the colon. Following purging the Roentgen ray has shown that the persistence of the back pain was due to the fact that the colon had not been evacuated. Spinal curvatures, strains of static type are very frequently overlooked as causes of pain in the occipital region. I agree with Dr. Davis regarding the value of some form of support in these cases. In my rather limited experience I do not think I have seen more than one or two cases of painful back due to Bright's disease. It is interesting to note in the general clinic that in the first examination of patients we may find the muscles on one side rigid, and on the other relaxed; on subsequent examinations, to find possibly both sides rigid, or the muscular tension transferred to another portion of the back, although the pain remains in the same position. There are certain conditions of muscular strain causing painful backs which are not yet explained.

Dr. J. T. Rugh: In myositis as a cause of pain in the back the hypodermic injection of hot salt solution, particularly in the body of the muscles, gives remarkable relief. In men in whom backache is relieved after a bowel movement examination should be made of the seminal vesicle and prostate gland for infection. The Roentgen ray has shown in cases of backache among laborers forced to flex the spine in their work, a congenital malformation of the fifth lumbar vertebra. In fact, it is an observation of roengenologists that it is unusual to find a normal fifth lumbar vertebra, and removal of the process of the fifth lumbar vertebra is being done by orthopedic surgeons with remarkable results in the cure of these cases.

Dr. William R. Nicholson: The reference to lack of pain in retroversions of the uterus would, I think be better stated by saying that in nuliparous women without adnexal disease, immovable retrodisplacement does not give pain except in very rare instances. In multiparous women, under these conditions, pain is present.

Dr. A. Bruce Gill: One is apt to be confused by the multiplicity of conditions that can cause pain in the back. I think they may be divided into (1) diseases of the spinal column; (2) conditions of referred pain, and (3) mechanical causes. While the first two causes are many, the mechanical causes outweigh them very greatly. Few people grow to adult life with perfect backs and the spinal column should be examined from the mechanical point of view. Acute sprain of the back involving only the muscles is relieved by massage; the deep injuries are made worse, which is an important diagnostic feature. In the early treatment of backache supportive measures may be advisable, with the subsequent employment of exercise, manipulations and gymnastics for the regaining of the erect posture.

The discussion was continued by Drs. Roussel, Herman, Brockbank, McGlinn and closed by Drs. Sailer, Davis and Macfarlane.

Samuel McClary, III, Reporter.

YORK—APRIL

The York County Society met in the Colonial Hotel, April 12, with President Eisenhower in the chair.

Mr. John C. Schmidt, president of the local chapter of the Red Cross Society, gave a brief history of the Red Cross Society, and called attention to the fact that, in proportion to its population, the United States has a smaller membership than any other civilized nation. The members of the society were asked to help the local campaign, not only by becoming members themselves, but by active solicitation. Speaking along more general lines, Mr. Schmidt made a plea for the conservation of foodstuffs and stated that it was our duty, in every possible way, to add to the productiveness of the country. He urged a campaign on the proper use of food to the end that well balanced meals may be prepared at low cost, and the proverbial wastefulness of the American people brought to an end. The speaker thought that we, as physicians, through our knowledge of dietetics, could be of great aid in this respect.

Mr. Grier Hersh, local representative of the Committee for Defense, said that the sanitary and medical work was the business of the physician; that our services would probably be needed in many different ways, and asked the society to appoint a committee with a chairman for the county, prepared to assist any way that might be requested.

Dr. John Gilbert, formerly connected with the army medical service, spoke concerning the field work of the Red Cross Society, and explained in detail the duties of an army physician.

Charles H. May, Reporter.

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ORIGINAL ARTICLES

REMOVAL OF FOREIGN BODIES BY DIRECT BRONCHOSCOPY AND ESOPHAGOSCOPY *

CURTIS C. EVES, M.D.
PHILADELPHIA

Before this trained body of laryngologists it is unnecessary to enumerate the many advantages of the direct methods for the removal of foreign bodies from the bronchi and esophagus over the old way of opening the thorax, blindly grouping with forceps and probanging the esophagus.

When we know, as stated by Dr. Chevalier Jackson[1] that "ninety-eight per cent. of the cases of the bronchoscopically removed foreign bodies are complete recoveries" and that over fifty per cent. of the cases in which the attempt is made by opening the lung are fatal, there is no argument except in favor of the direct methods. One cannot find a more striking example of the improvement in surgical methods than to compare the pushing of a blind old probang down the esophagus for the dislodgment of a foreign body, no matter how pointed or sharp it may be, with the introduction of a well-lighted distal end of an esophagoscope guided by the sight of a well-trained eye. More ridiculous still is the passing of forceps between the vocal cords or into a tracheal wound with the hope that they will come in contact with the foreign body.

Absurd as it seems these blind methods are still being practiced by some otherwise good surgeons. In this day of surgical enlightenment such procedures can best be expressed by paraphrasing a familiar saying to read "The blind pushing the blind."

The greatest difficulty for most of us is to get sufficient practice to become skilful. Practice on the cadaver and especially upon the body of a child with a long neck fits one fairly well. The manikin, while better than nothing, is a poor substitute except to train one's perspective vision and to afford a fairly good means for studying the mechanical problems connected with the removal of various forms of foreign bodies. The mechanical manipulations necessary for the removal of some foreign bodies require a great deal of ingenuity.

Jackson[2] gives some splendid methods for the removal of various forms of foreign bodies. Each foreign body, however, presents new and interesting problems which the operator must work out at the time.

Jackson says[3] that "No one should think of attempting for the first time to remove a foreign body from the human being until he has at least 100 times removed a foreign body from a dog."

REMOVAL OF A METAL PROTECTING CAP OF A LEAD PENCIL FROM THE RIGHT BRONCHUS

Patient: Male, aged 10 years, was brought to the Episcopal Hospital, Nov. 21, 1913, by his father who gave the following history: The day before, while crying, with the cap of a lead pencil in his mouth, the mother slapped the child on the back, which caused him to take a sudden, deep inspiration. He coughed, strangled and became very blue. The father thought he was unconscious and hurried him to the dispensary of a near-by hospital. By the time they had reached the hospital the cyanosis and difficult breathing had almost disappeared, but the child coughed almost continuously. Nothing was done at the dispensary so the father took the child that evening to see his family physician who sent him to the Episcopal Hospital.

On admission the chest examination showed moist râles all over the chest, more marked on the right side in front, at about the level of the fifth interspace. No areas of dulness could be elicited. Voice sounds slightly impaired. The patient coughed frequently, often raising small quantities of clean mucus. Temperature 102, pulse 95.

The following day being Sunday, no roentgenograms were taken. On Monday several plates were made which showed the foreign body to be located in the right chest between the fourth and sixth ribs, in a diagonal position supposedly in the right bronchus (Figs. 1 and 2).

That afternoon the foreign body was removed under ether anesthesia. After the interior of the larynx was brought into full view with laryngoscope, the bronchoscope was passed between the vocal cords into the trachea and the laryngoscope removed. By gentle pressure the bronchoscope was passed downward until

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*Read by title before the Section on Eye, Ear, Nose and Throat Diseases of the Medical Society of the State of Pennsylvania, Scranton session, Sept. 21, 1917.

[1] Pa. Med. Jour., Aug., 1916, p. 808.

[2] Chevalier Jackson, M.D.: Peroral Endoscopy and Laryngeal Surgery, pp. 270-346.

[3] Peroral Endoscopy and Laryngeal Surgery, p. 203.

the bifurcation was reached, then inclined a little to the right and engaged into the right bronchus. At this juncture the field was obscured by mucus. When the mucus was sponged away, glimpses of the foreign body could be seen during expiration. By passing the tube one-half inch further down, one half of the circumference of the open end of the cap could be seen and easily demonstrated. The cap was grasped with Jackson's bronchial forceps and drawn outward until it touched the end of the tube. As the body was too large to enter the instrument, it was held in this position while the bronchoscope was gently drawn outward. When the larynx was reached, the upper edge of the cap caught against the lower surface of the larynx and slipped out of the grasp of the forceps. The child became slightly cyanosed but soon breathed as freely as before. On reintroducing the instrument the cap was found in exactly the same position as at first. This time after two or three attempts, one blade of the forceps was engaged inside of the cap with the other on the outside, and the instrument and foreign body were gently withdrawn. At the level of the larynx some obstruction was encountered but easily overcome by rotating the foreign body into the long axis of the larynx. Scratches on the cap showed that at the first attempt the forceps had grasped over both sides of the cap thus giving a very unstable hold.

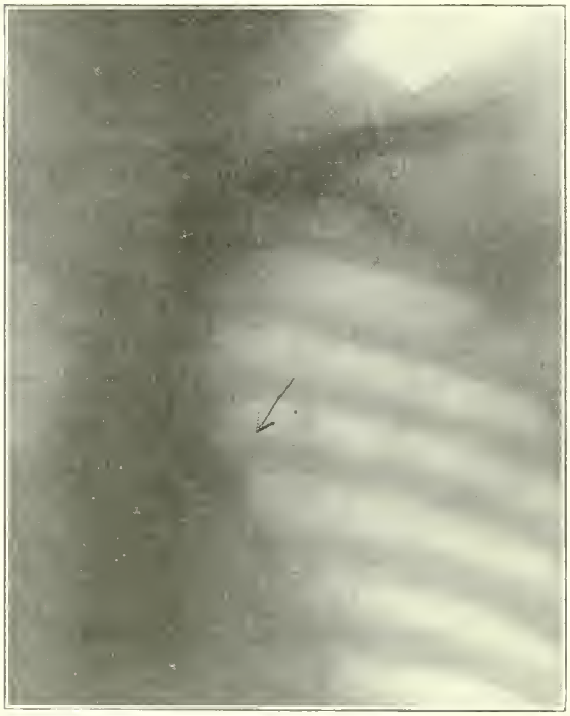

Fig. 1.—Metal protecting cap of a lead pencil in right bronchus.

Before the laryngoscope and bronchoscope were introduced the second time, the head of the table was elevated to about 30 degrees, thus making it possible for the operator to stand nearly erect. I had never tried this position before, but found that it worked perfectly and is much easier for the operator than the old back-breaking way of kneeling or sitting on a low stool, when a very high table is not accessible. The field was obscured at times by small amounts of mucus which were easily sponged away. No cocain was used and little or no reflex irritation of the larynx or bronchi was encountered.

The after-treatment was that of pneumonia. The patient was placed in the out-door ward and given small doses of ammonium chlorid, three times per day. The cough disappeared at once. For two days moist râles could be heard over the right anterior chest. The evening temperature was between 99 and 100 F. After the second day no symptoms appeared and the patient was discharged the fourth day following the operation perfectly well.

Since operating on this case, when performing bronchoscopy I have the patient's trunk elevated to an angle of about 30 degrees with sand bags on the table so that the head when extended will give room for the assistant's hands between the head and table. The assistant who manipulates the head sits at the left of the patient and holds the head between his two hands. Having the patient's body at this angle decreases very much the cramped position in which the operator must work when the head is drawn over the end of the table as in the Boyce position.

BRASS-HEADED TACK REMOVED FROM THE RIGHT INFERIOR LOBE BRONCHUS

Patient: Boy, aged 8 years, was admitted to the Episcopal Hospital, Feb. 16, 1916, with the history of having swallowed a tack during a fit of coughing while playing with a handful of brass-headed tacks. The father said the child began to cough immediately afterward, was not cyanotic and had no trouble breathing. For two days the boy played around as usual, nothing was done until the second day, when the boy complained of violent headache and the mother noticed he had fever. Dr. G. J. Kraus was called. The child told the doctor that he had swallowed the tack and said it stuck in the throat pointing to region of the larynx, complained of pain when he swallowed. The boy was sent to the hospital with a temperature of 101.6 F., respiration 26. Roentgenoscopy was first negative, later showed the tack, head down, near the median line on the right side opposite the sixth dorsal vertebra, reported to be in the esophagus.

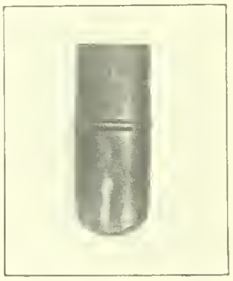

Fig. 2.—Metal cap shown in Fig. 1.

Chest Examination: Moist râles were heard over the right chest, a large area of dulness over the right base. Respirations were somewhat increased, and limited on the right side. Child had slight cough at times and always coughed when turned on the right side.

The second day after admission, the tack was looked for and located with the bronchoscope, the child coughed and apparently dislodged the tack which could not easily be located again. As the general condition of the child was very bad, further attempts were given up at the time. Under treatment the child's condition improved very much. Forty-eight hours later, under ether anesthesia, the tack was located in the right inferior bronchus, but the point could not be seen. When grasped by the forceps the point was found to be imbedded in the wall of the bronchus. The tack was backed up, rotated and the point end drawn into the bronchoscope. The instrument and tack were then withdrawn.

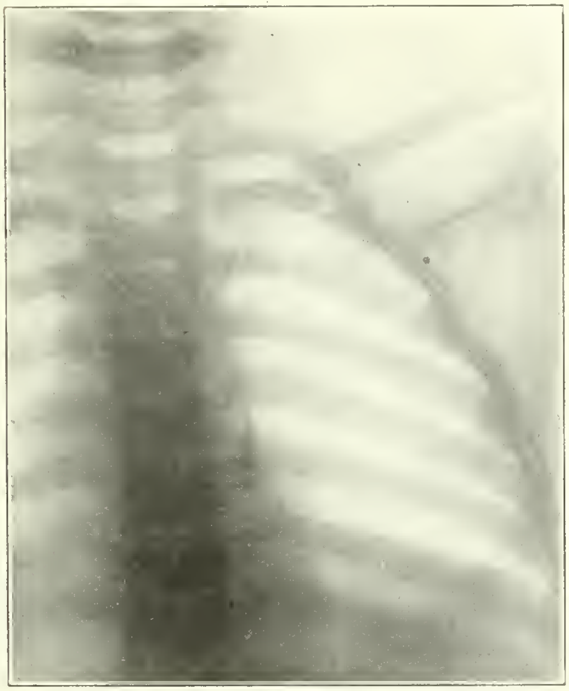

Fig. 3.—Brass-headed tack in right inferior lobe bronchus.

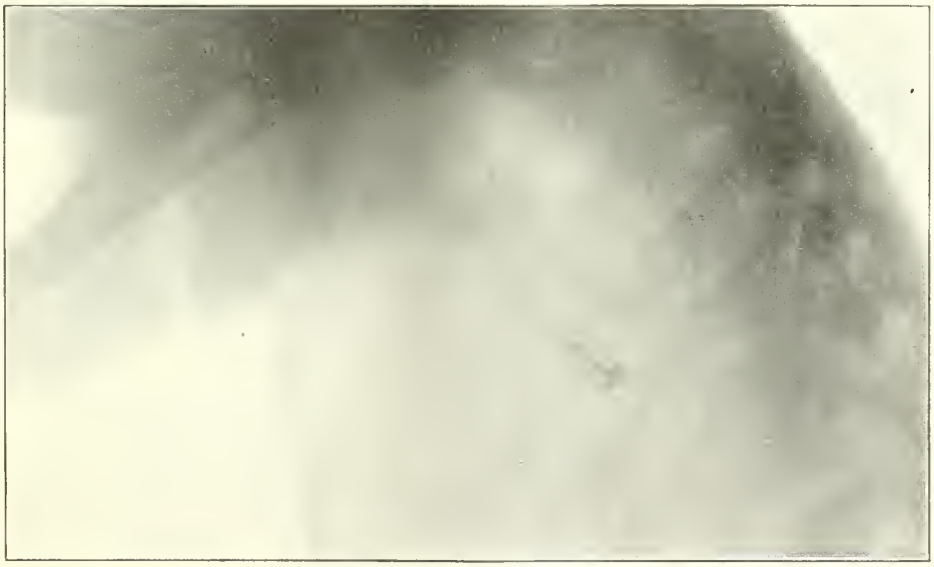

Fig. 4.—Lateral view of Fig. 3.

Considerable mucopurulent secretion had to be sponged away before the tack could be seen.

Between the first and second attempts at removal, roentgenograms were taken which showed the location to better advantage (Figs. 3, 4 and 5). Before the last roentgenogram, one hour before operation, fine wires were strapped on the chest over iodin lines marked on the skin. This was done to assist in easily locating the depth of the foreign body. After the head was placed in position, the exact distance from the teeth to the line on the chest corresponding to the Roentgen-ray line covering the foreign body was marked on the bronchoscope, forceps and sponge holders. These locating marks were a decided help in more quickly ridding the bronchus of secretions and locating the tack.

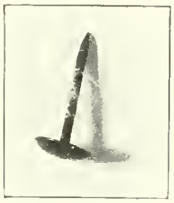

Fig. 5.—Brass-headed tack shown in Figures 3 and 4.

The whole time for this case was forty minutes. The child reacted nicely from the anesthesia. The general condition gradually improved, temperature and pulse were normal on the sixth day. On the seventh day after the operation without known cause the child developed subglottic edema and had to be intubated. From the time the tube was introduced, he became rapidly better. Two days later the tube was taken out. No further symptoms developed and the patient was discharged one week later, two weeks after the operation in perfect health. When last heard from several weeks later the child was perfectly well.

When a patient is in bad condition due either to previous attempts at removal of a foreign body, or to nervous exhaustion or from any cause other than the presence of the foreign body *per se,* I have found it always best to give the patient two or three days' rest with careful nursing before attempting bronchoscopy or esophagoscopy.

REMOVAL OF FOUR PIECES OF PEANUT KERNEL FROM THE RIGHT MIDDLE LOBE BRONCHUS

Patient: Boy, aged 3 years, was brought to the Pennsylvania Hospital, April 8, 1916, from Freeland, by the mother who gave the following history: Nine days before, while eating peanuts, the child started crying. The mouth being full of peanuts partly chewed at the time, the child immediately choked, struggled, gasped for breath, and had violent coughing attack. The child seemed to grow alarmingly distressed. The mother sent for a physician who administered an emetic, but vomiting gave no relief. The child was taken to a hospital where a roentgenogram of the chest was negative and the child was sent home. He continued to have difficulty in breathing and frequent coughing attacks. He became spasmodically dyspneic, often cyanotic, would clutch at throat, struggle and cry.

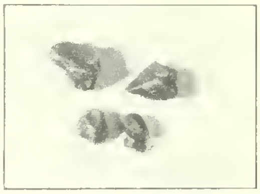

Fig. 6.—Four pieces of peanut kernel removed from right middle lobe bronchus.

On admission to the Pennsylvania Hospital, nine days after the accident, his temperature was 101.6 F.; pulse 132, and respiration 24.

Physical examination showed diffuse, moist râles over the entire chest, over a localized area on the right side they were more intense. Diminution of the respiratory sounds over the area was heard together with a distinct click during each inspiration. An instantaneous radiograph taken by Dr. Bowen showed a shadow over the area corresponding to the right middle lobe bronchus. These plates were the best I have ever seen and were of great aid in localizing the foreign body. Four hours after the child entered the hospital, the bronchoscope was passed under ether showing the right bronchial tree to be almost entirely filled with blood-stained mucopurulent secretion, which was carefully sponged away after the method of Jackson. The particles of peanut were finally, after one-half hour, located in the right middle lobe bronchus and removed one at a time with fine broncheal forceps (Fig. 6). The patient reacted nicely. In about two hours, however, difficulty in breathing occurred caused by subglottic edema. The child was intubated, the tube being left in place for thirty-six hours with cold applications to the larynx. The patient had slight cough with mucopurulent expectoration and temperature of 100 F., for four days, after which the cough and temperature disappeared. For one week after the removal of the foreign body, râles could be heard over the chest especially on the right side. They gradually cleared up and the child left the hospital in two weeks.

The subglottic edema in this case was due, I think, to an attempt to use too large a bronchoscope at the beginning of the operation.

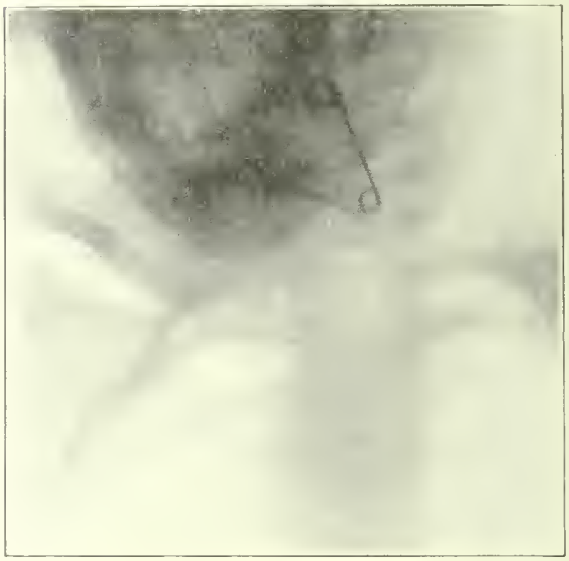

Fig. 7.—Safety-pin in the hypopharynx.

SAFETY-PIN REMOVED FROM THE HYPOPHARYNX

Patient: Male child, aged 3 years, was admitted to the Episcopal Hospital, April 17, 1915, with the following history: The previous night, about 9 o'clock, the child swallowed a safety-pin which he took from some clothes near by. Immediately after swallowing the pin, the child began to vomit which he kept up at intervals all night. Before the accident the child was very talkative, after it he talked very little and when he did he cried immediately afterward. The head was held a little to the right and forward, and when an attempt was made to move it, the child cried with pain.

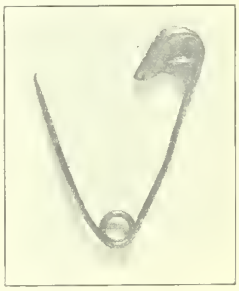

Fig. 8.—Safety-pin shown in Fig. 7.

A roentgenogram showed an open safety-pin, a little over one inch long with the point up at the level with the top of the esophagus (Figs. 7 and 8).

The child was given a general anesthetic, the pin was located with the direct laryngoscope partly engaged in the mouth of the esophagus, the pointed end sticking into the wall of the right pyriform sinus while the other end protruded forward into the larynx. The hinged end of the pin was grasped by the esophageal forceps, the pin gently turned and drawn into the laryngoscope. The pin was removed in three minutes with no injury to the esophagus or larynx.

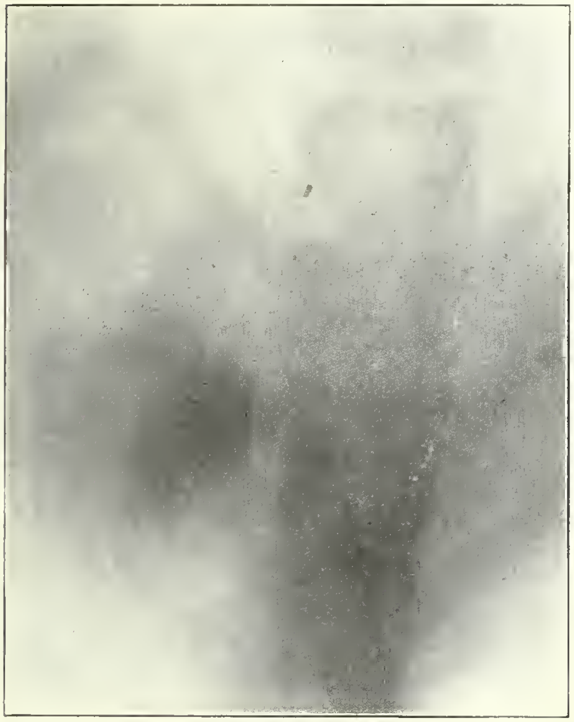

Fig. 9.—Peach stone in the esophagus.

The second day the patient was discharged from the hospital having no symptoms after he came out of ether.

PEACH STONE REMOVED FROM THE ESOPHAGUS

Patient: Female, aged 22 years, Polish, was admitted to the Episcopal Hospital Aug. 29, 1915. A few hours before she was admitted to the hospital, while sucking a peach stone, it suddenly slipped back in her throat and was swallowed. After swallowing the peach stone, she was unable to swallow either liquids or solids. She complained of pain underneath the lower end of the sternum. A few seconds after an attempt to swallow liquids, the food was regurgitated. There was no cough, aphonia or dyspnea.

A roentgenogram showed a shadow about the size of a peach stone at the level of the seventh rib in the mdidle line (Figs. 9 and 10).

The pharynx and esophagus were cocainized with a 20 per cent. solution. The foreign body was easily located with the esophagoscope and several attempts were made to grasp it with the forceps. The attempt was given up in about twenty minutes, owing to the inability to grasp the body with the forceps at hand. The second day, after other forceps had been obtained, the patient was etherized. The foreign body was again located in the lower end of the esophagus. It was grasped with the forceps and gently pulled, together with the esophagoscope to the upper end of the esophagus where a great deal of resistance was met. At this juncture, the forceps slipped from the foreign body. When it was located again, it was found in the lower end of the esophagus. Two pair of forceps were broken in twelve attempts to pull the peach stone through the upper end of the esophagus. Finally after gripping the body with a strong pair of forceps, slow traction was made for about two minutes which gradually tired the muscular fibers of the cricopharyngeal constriction and allowed the foreign body to come through.

The whole procedure lasted about two hours. For two days after the operation the patient complained of some pain on swallowing soft diet; the fourth day she was discharged from the hospital.

Ether was undoubtedly the preferable anesthetic in this case. My experience has been so meager in this line of work that I should not attempt to discuss anesthesia. Out of twenty cases I have only done three without anesthesia, four with cocain and the remainder under ether. So much depends on the temperament of the patient, the assistants one has, and on one's own skill, that I think it is safe to advise ether for at least the first few cases attempted on the living; especially in esophageal cases where a sharp or pointed foreign body is suspected is it necessary and important to have complete relaxation.

COIN REMOVED FROM THE ESOPHAGUS

Patient: Child, aged 15 months, was admitted to the Episcopal Hospital, June 24, 1915. Eighteen days before while playing on the floor, the child swallowed a 25 cent piece. Parents state that the child turned blue with a fit of coughing and went into convulsions. The child was immediately taken to a nearby hospital but by the time it reached there the symptoms had subsided. However, the child still would not talk, could only swallow liquids and cried each time after swallowing. A roentgenogram was taken locating the quarter in the upper third of the esophagus. At the time the parents refused operation and took the child home.

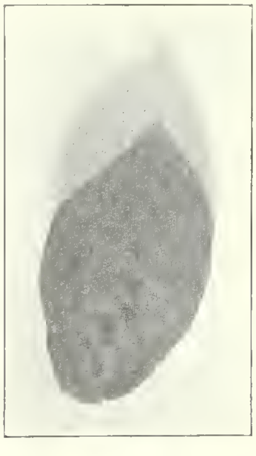

Fig. 10.—Peach stone shown in Fig. 9.

Between the time of the child swallowing the coin and the date of admission to the Episcopal Hospital, three weeks later, the child talked very little. The voice was hoarse, and each time on swallowing liquids the child cried. A roentgenogram taken at the hospital showed the quarter in the upper third of the esophagus at the level of the top of the sternum (Fig. 11). Under a general anesthetic the esophagoscope was passed and the foreign body easily located. It was firmly imbedded and some traction was necessary to remove it. As is the custom in foreign bodies too large to remove through the instrument, it was drawn up against the end of the esophagoscope and the instrument and the foreign body drawn up together.

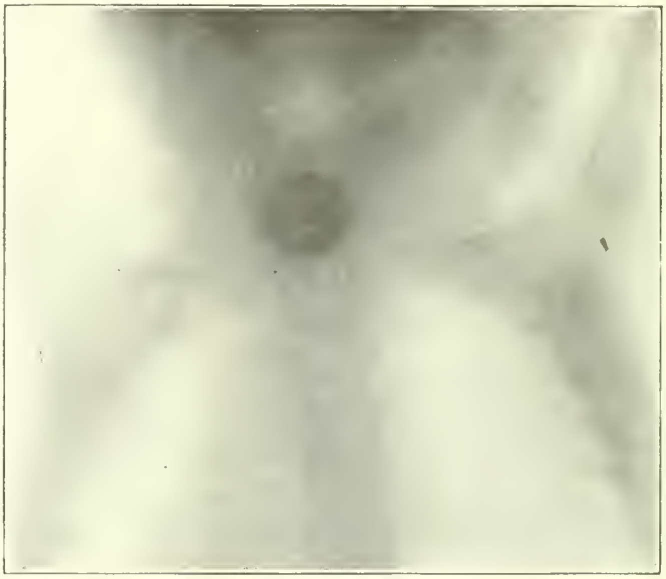

Fig. 11.—Coin in the esophagus.

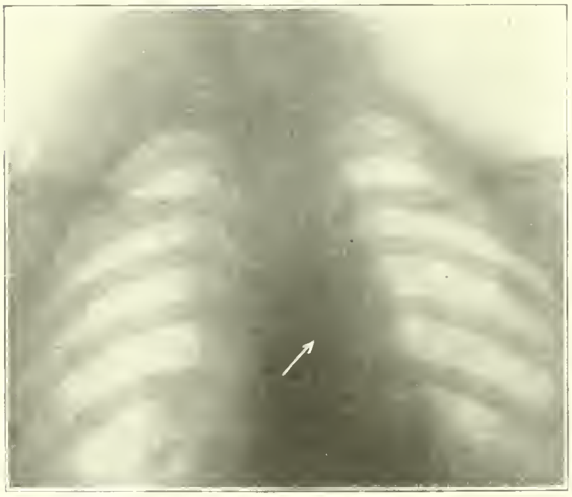

Fig. 12.—Bone in the esophagus.

Less than fifteen minutes were required to remove the foreign body. The next day the patient's condition was very good, and two days later he was discharged.

BONE REMOVED FROM THE ESOPHAGUS

Patient: Female, aged 43 years, housework, was admitted to the Episcopal Hospital, Aug. 13, 1915, with the following history:

About two hours before admission, while eating noodle soup, she felt a sharp object strike against the palate and as she swallowed a second time it stuck in her throat. The patient judged it must have been a bone because she knew there were chips of bone in the soup. Her symptoms were pain on swallowing and a constant pain in the throat, no cough or aphonia. She had not attempted to swallow food.

A roentgenogram taken immediately showed the bone on the right side about the fourth cervical vertebra, about ¾ inch long, presenting edgewise to the front, which would indicate the foreign body to be in the larynx or trachea.

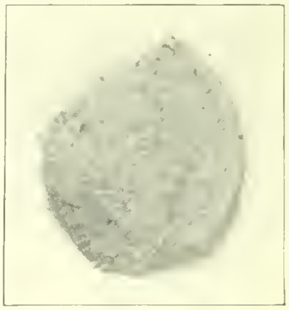

Fig. 13.—Bone shown in Fig. 12.

The larynx and pharynx were anesthetized with 20 per cent. cocain. Laryngoscopic examination showed nothing in the larynx. The esophagoscope was passed through the laryngoscope into the right pyriform sinus, located the foreign body in the upper esophagus and the foreign body was removed after one unsuccessful attempt. It proved to be a bone, circular in shape with a diameter about that of a half dollar, of a varying thickness at the periphery. The edge of the bone was very sharp, slight bleeding occurred after removal. After removal the patient had no difficulty in swallowing and was discharged in two days in perfect condition.

The time of the operation, including anesthesia, was thirty-five minutes.

The foreign body had evidently worked further down into the esophagus after the roentgenogram had been taken; when seen with the esophagoscope it was presenting broad side to the front in the upper esophagus, which is the rule with flat bodies in the esophagus. At the first attempt the esophagoscope slipped over the foreign body before it was seen; this is not an uncommon fault as the cricopharyngeal fold which extends forward from the posterior hypopharyngeal wall often causes the esophagoscope to slip forward over a flat foreign body, lodged in the upper two inches of the esophagus. This fault can best be overcome by carefully following the correct high-low method described by Jackson.[4]

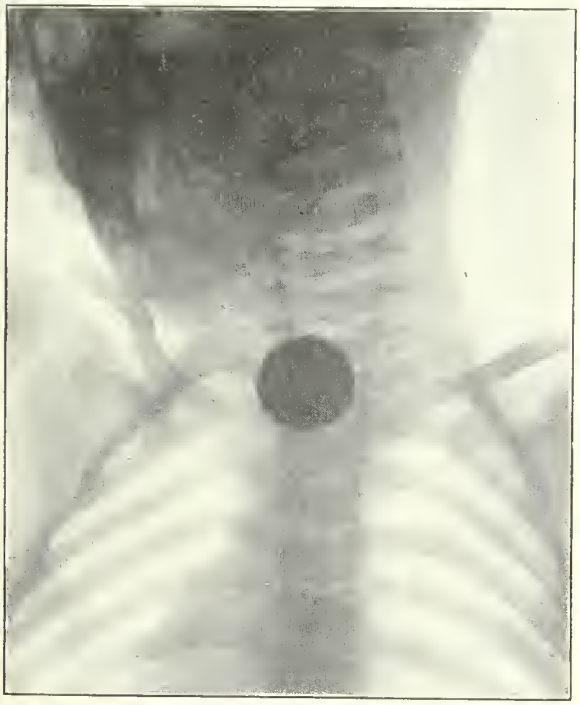

Fig. 14.—Sweater button in upper third of esophagus.

SWEATER BUTTON REMOVED FROM THE UPPER THIRD OF THE ESOPHAGUS, TWENTY-FIFTH DAY

Patient: Boy, aged 4 years, was brought to the Episcopal Hospital by the father who gave the following history relative to the child's present illness: Twenty-three days before the child was supposed to have swallowed a pin while playing on the floor. From then the child had not been able to swallow solid food, could swallow liquids only when taken in sips. Had had no history of cough, hoarseness or difficult breathing. Except for a temperature of 100 F., pulse 120, and respiration 20, the general examination was normal. Nothing abnormal in lungs, which indicated the foreign body was in the digestive tract.

Roentgenoscopy of the chest showed a foreign body resembling a 25 cent piece on front view; lateral view shows it to be of greater thickness and located opposite the first and second dorsal vertebrae (Figs. 14, 15 and 16).

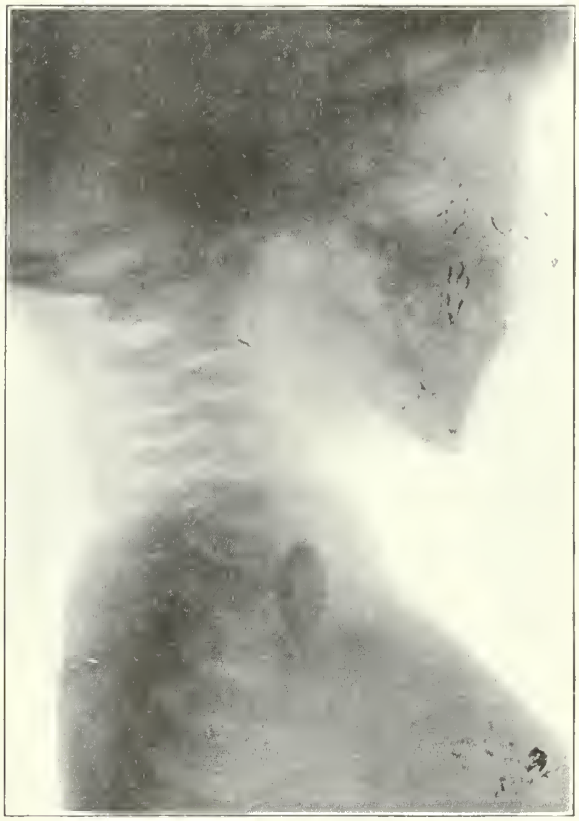

Fig. 15.—Lateral view of Fig. 14.

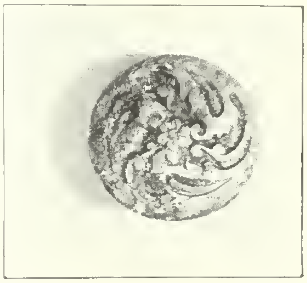

Fig. 16.—Sweater button shown in Figures 14 and 15.

Under ether, a sweater button was removed from the upper third of the esophagus with the direct esophagoscope. Very little difficulty was encountered except at the cricopharyngeal constriction of the esophagus where some resistance was met. The time for removal was five minutes.

The next day the child's temperature was 101 F. The second day the temperature and pulse were normal and the child swallowed solids without difficulty.

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[4] Peroral Endoscopy and Laryngeal Surgery, p. 188.

PARTICLES OF NUT KERNEL REMOVED FROM UPPER THIRD OF ESOPHAGUS
SEVENTH DAY

This patient, a female child 17 months old, was brought to the Pennsylvania Hospital, March 23, 1916, by the father who gave the following history: Four or five days before, the father said he saw the child swallow a button; since then the child could not swallow solids and took liquids in small quantities with difficulty.

A roentgenogram was taken of the child's chest which was negative. Owing to a quarantine on the children's ward at the Pennsylvania Hospital, the child was referred to the Episcopal Hospital. Two days later under an ether anesthesia the esophagoscope was passed. When it entered the esophagus, a whitish mass came into view which felt semi-solid to a probe. An attempt was made to grasp it with foreign body forceps, the mass broke easily and was removed in four or five pieces, the largest the size of a pea. Below the nut, a strip of brown, fibrous material was impacted one-fourth inch wide and about one and one-half inches long, which resembled in appearance that of a dried blade of grass (Fig. 17). After this was removed the esophagoscope was passed gently into the stomach but no other obstacle was found. The time for the case was six minutes.

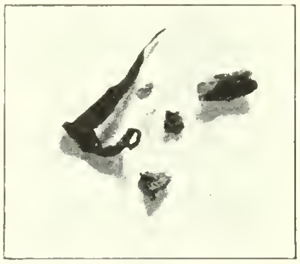

Fig. 17.—Particles of nut kernel removed from upper third of esophagus.

The next day the child had no temperature or other symptoms and swallowed solids normally. The harder fibrous material I think had blocked the esophagus and the nut kernel had lodged against the obstruction, otherwise the nut would have passed into the stomach.

Only upon the most urgent cases (which are very rare) should bronchoscophy or esophagoscopy be performed for the removal of foreign bodies before obtaining an intelligent history of the case, good roentgenograms, and a report of the physical examination of the chest. Two points are of special interest in the history; first. as to the nature, size, and shape of the foreign body supposed to have been swallowed; second, as to the probable location of the foreign body.

Too much dependence cannot be placed on what a child or its parents say it swallowed. In fifty per cent of my cases I have found the foreign body to be of different kind from that given in the history; buttons and bones are the favorites.

Cough, cyanosis, and dyspnea are the symptoms usually seen if a fairly large, hard foreign body has entered either bronchus or the esophagus. These symptoms are caused by the presence of the foreign body in the hypopharynx and larynx and usually only last for a short time. If the cough is kept up for some time. and especially if it is followed by bloody expectoration one can be fairly sure of a foreign body in the trachea or bronchus. If following the initial cough and dyspnea the patient has difficulty in swallowing or regurgitation of food the esophagus should be suspected. More pain is usually experienced with a foreign body in the esophagus; foreign bodies in the larynx and trachea may give continuous dyspnea, cough and cyanosis.

Jackson [5] points out the very important fact that "very often after a short time, the tolerance of the air passages manifests itself in a total absence of symptoms," for this reason foreign bodies are frequently overlooked.

Roentgen-ray: Besides knowing the shape of a foreign body, it is of great assistance to know its depth, distance back, and probable angle. These can only be obtained by at least two radiographic views of the chest, with clear, definite outline. It must be remembered as shown in one of the cases reported, that a foreign body may change its position and angle after the roentgenogram has been taken. Instantaneous radiography has been developed to such a degree that many foreign bodies are now located which previously did not show by Roentgen-ray.

In bronchoscopy and esophagoscopy as perhaps in no other branch of surgery does one's success or failure depend so much on his assistants, and especially on the assistant who manipulates the head of the patient.

Careful inspection should be made of the instruments each time before they are used. A poorly working forceps or a badly lighted tube may be the cause of failure. Forceps can often be set at a convenient angle by consulting the Roentgen-ray plates of both anteroposterior and lateral views. It is often advantageous to measure the depth of the foreign body from the upper teeth after the patient's head is in position and to mark it on the instruments.

The importance of careful physical examination of the chest can only be appreciated by those who have attempted to remove foreign bodies from the bronchi which did not show on the Roentgen-ray plate.

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[5] Peroral Endoscopy and Laryngeal Surgery, p. 213.

The group of physical signs found with foreign bodies in the bronchi must necessarily depend somewhat on the character (size, shape, weight, etc.) of the foreign body and to its location in the bronchial tree, also to some extent do the physical signs depend on the length of time the foreign body has been in the bronchus.

Local moist râles heard early which gradually extend over the entire chest are practically always present.

Local diminution of the breath sounds with increased resonance over the same area is the rule.

In two cases I have seen there was a decided click or knock heard once only on each inspiration over the area in which a foreign body was located. This may have been the same sound that Dr. J. W. Boyce characterizes "as a peculiar dry râle." To me the sound in these cases was of too distinct a character to be termed a râle—more like a click, or the flap of a valve.

In speaking of the physical signs of foreign bodies Dr. Boyce[6] says: "The most common finding is a marked local diminution of the respiratory murmur, together with the presence of accentuation of normal resonance and this may be rated as the typical condition in foreign body cases.".

Moist râles heard over the entire chest, more intense over a certain localized area, with diminution of the breath sounds over the same area, plus a decided click heard within this area once on each expiration should always lead to bronchoscopic examination even in the presence of negative history and negative radiograph.

I would like to add my belief to that of a number of writers on this subject, that a more careful study of the physical signs in every foreign body case will eventually lead to a standardization of these signs which will be of much value in diagnosticating and localizing obscure foreign bodies.

1700 Walnut Street.

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[6] Chevalier Jackson, M.D.: Esophagoscopy and Gastroscopy, p. 91.

THE POSSIBILITY OF VOICE INHERITANCE

Walter B. Swift, M.D.

Summary: (1) Literature on eugenics and cacogenics shows that bone shapes are probably inherited. (2) The noses of the Indians, and the Greeks, and the Jews, prove this pretty conclusively. (3) The lower animals afford data that put this thesis beyond doubt. Thus it is proved that bone forms are inherited. Then what is contained in them is also inherited, and therefore the functions that those cavity shapes subserve, such as vocal quality and utterance, are likewise inherited.—*Review of Neurology and Psychiatry*, March, 1916.

MINE INJURIES TO THE EYE AS RELATED TO THE COMPENSATION LAW *

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Since the first of the year the Compensation Law has been in effect in Pennsylvania and it occurred to the writer to study the application of this law the first six months of its operation. This study was particularly directed to injuries of the eyes occurring among the twenty-three thousand miners of the Lackawanna Coal Company. As all but the slight injuries were treated at the Moses Taylor Hospital here, a fairly accurate history of each case was obtained until patient returned to work.

The law provides, among other things, that when a miner is injured he receives no compensation other than medical attention for the first two weeks; and thereafter compensation equivalent to half his earning power, but not to exceed 125 weeks. It is optional on the part of the employer to provide medical treatment after two weeks. However, it is the custom of the Lackawanna Company to provide treatment until the employee has recovered sufficiently to return to work.

There were in all 102 cases, ranging from a foreign body in the eye, removed with no disability, to more serious injuries, in one case requiring enucleation. I will not take your time for the present by giving details of the cases tabulated other than to classify them.

Foreign bodies	26
Traumatic conjunctivitis and contusions	44
Burns	3
Ulcers	14
Lacerations	13
Abrasions	2

It is not the writer's object to lay claim to any originality in the treatment of these cases, as well-established methods were used in each case, but rather to emphasize the importance to patient and employer of immediate professional care of every injury, no matter how slight, and kept under observation until given a clean bill of health.

In going over these cases in detail it was noticed that those who reported promptly had an average disability of 6½ days, but eighteen did not apply for treatment until from five to ten days after injury; of the latter, thirteen, with an average disability of 31 days, had foul ulcers of the eye to which more attention will be given in this paper.

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* Read before the Section on Eye, Ear, Nose and Throat Diseases of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 20, 1916.

It would seem at the first glance that the ordinary law of self-preservation would induce the average workman to seek professional treatment for so important an organ as the eye, but such is not the case. Every employee when injured is instructed by the foreman to see the doctor immediately and not to return to work without a certificate of health, and yet 8 per cent. of the employees paid no attention to this and proceeded to treat themselves with the following result:

Name	Date of Accident	First Treatment	Closed	Disability	Final Result	Compensation	Approx. Loss of Income to Employee	Maintenance Prof. Service During Injury to Employee	Total
G. B.	2/5	2/10 6 days	3/6	30 days	Loss of eye	$725	$ 72	$ 90	$887
M. S.	3/9	3/15 3 days	4/15	38 days	R. 20/70	13	91	114	218
O. S.	3/10	3/13 6 days	3/18	Refused treatment	Loss of sight	....	72	90	162
W. R. W.	3/21	3/27 6 days	5/5	46 days	L. 20/80	37	115	138	290
L. B.	3/24	3/30 2 days	4/15	0	L. 20/50	....	55	66	121
W. D.	3/25	3/27 2 days	4/25	31 days	Not obtained	....	78	93	171
J. B.	3/27	3/29 7 days	4/22	27 days	R. 20/60	16	68	81	165
T. L.	4/3	4/10 7 days	4/30	28 days	R. 20/100	8	70	84	162
E. J.	5/5	5/12 5 days	7/25	83 days	L. 20/100	54	208	249	511
J. V.	5/22	5/27 10 days	6/17	26 days	L. 20/50	....	65	78	143
E. M.	6/5	6/15 3 days	7/10	36 days	L. 20/100	12	90	108	210
J. Y.	6/21	6/24 2 days	7/8	17 days	R. 20/50	....	43	51	94
T. C.	5/18	5/20	5/31	13 days	L. 20/60	....	33	39	72
									$3,106

It is apparent to all that these ulcers could have been prevented, thereby avoiding unnecessary expenditure on the part of the employer, and saving much suffering and loss of time on the part of the employee. Nor is this all; there is diminished earning power and in all cases, scarred eyes and loss of visual power, and when such a patient is reinstated there is greater liability of accident to himself as well as to his fellow workmen.

It would seem then that the law as conscientiously operated the first six months of its existence works an injustice to the employer as well as to the employee. If the employee, by reason of his ignorance or otherwise, loses nearly all the vision in one eye he receives only the regular one-half pay after the first two weeks if unable to work. In other words he must be totally blind in one eye before he is entitled to collect full compensation of $725.

The remedy: An employee when injured ought to be compelled to seek treatment where well-established modern methods are practiced, or recover no indemnity from his employer. On the other hand the employer ought to indemnify the employee for not alone complete loss of an eye but partial loss as well, assuming, of course, that he lived up to his contract.

Since writing the above I received a letter from the company giving an exposition of the law from their standpoint and from which I will quote:

"We are making every effort to force these injured persons to the physicians for prompt treatment, regardless of how trivial the injury might seem to be, for in each case of an eye injury, for instance, where the injury is not treated and a corneal ulcer or other trouble results from lack of treatment, and one eye is lost by reason of this carelessness, each case costs us ultimately $700. We are required to pay this amount, notwithstanding that the injured person is able to resume work inside of six or eight weeks, and then he is receiving his compensation plus the wages he is able to earn, and ordinarily they are able to take the same class of work they were doing before the accident occurred. A man, however, who is in the mining industry, and has but one eye, or an impaired vision of one or both eyes, is in constant danger of further injuries to his sight, and by reason of his impaired vision or the loss of an eye, the lives and limbs of others are constantly in jeopardy.

"It might be further considered from the viewpoint of the employee, that by reason of the impaired vision, the employments which the employee may be able to obtain are naturally limited and indeed, a person with impaired vision will have some difficulty in all states where compensation acts are in effect to get any employment at all, because the employers do not care to take the risk of employing a man, who, through impaired vision, might endanger his own life and the lives of others, and even the employer in whose employ he was when injured would have a perfect right to discontinue his employment as soon as he had discharged the obligation in paying the compensation due, or he might decline to reemploy the injured person at all."

A word as to treatment:

FOREIGN BODIES

Only foreign bodies taken from the cornea are included in this list. Treatment: Foreign body is removed under cocain. The eye is cleaned and a pad of gauze applied and kept in position with adhesive plaster. If the removal is belated, the wound is also lightly cauterized with heated iron probe. Patient is instructed to take off the pad in from twelve to seventy-two hours, depending on the condition. Instructions are given to wash the eye with boric solution every three hours. This can be done with an eye cup, the pad being temporarily removed.

If after the compress is taken away the patient has sensation of foreign body in eye or photophobia he is instructed to replace the pad and come directly to the hospital.

It would appear that all this precaution for a small foreign body in cornea is unnecessary, and yet such minute wounds if neglected sometimes destroy the eye. Then, too, the moral effect on the patient is good and he is convinced that there is a wound which required protection following removal of the foreign body. Where such precautions are taken the wound heals promptly and the danger from ulceration is nil.

TRAUMATIC CONJUNCTIVITIS AND CONTUSIONS

Under this head are grouped all cases in which the patients, from one cause or another, present themselves to us with well defined inflammation of conjunctiva, particularly of the bulbar conjunctiva. This is often caused by what the miners call "sulphur water." It usually occurs, however, from being struck with pieces of rock or coal in an atmosphere heavily laden with powder smoke.

Treatment: All cases are carefully examined for corneal lesions and for dislocation of the lens. In mild cases the patients are treated in the outdoor department. In the more severe cases the patients are treated in the hospital and put to bed, cold compresses applied, atropin where there is doubt as to forward dislocation of lens or possible danger of iritis.

BURNS

Burns are treated in bed with from two to ten per cent. boric acid ointment.

ULCERS

Patients suffering from ulcers are given a cathartic, put to bed, the ulcer cauterized with iron probe heated until red, atropin if indicated, 25 per cent. argyrol every three hours, boric irrigation and hot water compresses. Cauterization repeated if necessary on third or fourth day.

LACERATIONS

If iris is prolapsed it is snipped off and atropin used as indicated. If wound of sclera or cornea is large an attempt is made to bring the torn edges together with stitches, and in the case of the sclera to cover with conjunctiva membrane. If lens is dislocated in anterior chamber it is removed, patient put to bed and symptoms treated.

ABRASIONS

Eye is bandaged and argyrol and boric solution ordered. Bandage removed after wound is healed.

It might be stated here that a skiagraph is made of nearly every case of injury to the eye where there is a remote probability of metal being driven in the eye, but coal, of course, will not show.

I am indebted to Dr. Rebhorn and indeed to all the physicians of the Lackawanna Coal Company for the cheerful manner in which they assisted me in compiling the statistical part of this paper.

CASE REPORTS

Case 1.—T. C. Employed at Bellevue Breaker. Injured Jan. 5, 1916, by being struck over the left eye by a hoisting chain. First aid was given. Went to hospital January 5. Diagnosis: Marked swelling of upper and lower eyelids. Conjunctiva congested. Treatment: Atrop. sulph. 1 per cent., boric irrigations, argyrol and cold applications. Discharged January 8. To work January 17; thirteen days disability.

Case 2.—W. C. Employed at Archbald Mines. Injured Jan. 16, 1916, by being struck in the left eye by a piece of coal. No first aid given. Went to hospital March 29. Diagnosis: Foreign body in the eye, ulcer formed about foreign body. Marked conjunctivitis. Treatment: Foreign body removed. Ulcer cauterized. Argyrol and boric irrigations. Remarks: Patient stated that he had no trouble until March 27, when the eye began to pain him. Discharged April 1. To work April 1; four days.

Case 3.—J. W. Employed at Bellevue Mines. Injured Jan. 17, 1916, by being struck in the left eye by a piece of coal. No first aid given. Reported to company doctor January 18. Diagnosis: Scratch on right cornea. Moderate conjunctivitis. Treatment: Boric irrigations. Yellow oxid ointment and pad on eye. Discharged January 19; three days.

Case 4.—J. S. Employed at the Woodward Mines. Injured Jan. 21, 1916, by being struck in the left eye by a piece of coal. No first aid given. Reported to company doctor January 21. Diagnosis: Inflammation right eyeball. Contusion. Treatment: Solution of boric acid. Cocain. Discharged January 30; ten days.

Case 5.—P. S. Employed at Storrs, No. 1. Injured Jan. 28, 1916, by being struck in the eye by a piece of coal. No first aid given. Reported to company doctor January 29. Diagnosis: Congested eye.

Treatment: Boric acid irrigations. Closed February 10; one day.

Case 6.—G. B. Employed at the Cayuga Mines. Injured Feb. 5, 1916, by being struck in the left eye by a piece of coal. No first aid given. Went to hospital February 10. Diagnosis: Corneal ulcer and conjunctivitis of left eye. Treatment: Boric irrigations and argyrol 25 per cent. Referred for Roentger ray. Remarks: Patient neglected eye for five days; result, loss of eye. Closed March 6; thirty days.

Case 7.—M. B. Employed at Bellevue Mines. Injured Feb. 5, 1916, by being struck in the left eye by a piece of rock. No first aid given. Reported to company doctor February 7. Diagnosis: Slight conjunctivitis. Foreign body in the eye. Treatment: Boric acid irrigations. Yellow oxid ointment. Pad on eye. Closed February 8; three days.

Case 8.—H. P. Employed at the Bliss Mines. Injured Feb. 10, 1916, by being struck in the left eye by a piece of coal. No first aid given. Reported to company doctor February 17. Hospital February 19. Diagnosis: Marked traumatic conjunctivitis. Treatment: Boric irrigations, argyrol and rest in bed. Closed February 25; fifteen days.

Case 9.—T. K. Employed at the National Mines. Injured Feb. 10, 1916, by being struck in the left eye by a piece of coal. No first aid given. Went to hospital February 12. Diagnosis: Traumatic conjunctivitis. Treatment: Boric irrigations and argyrol 10 per cent. Remarks: Patient was not troubled until February 11. No foreign body in eye. Closed February 12; no disability.

Case 10.—J. M. Employed at the Truesdale Mines. Injured Feb. 11, 1916, by being struck in the eye by a piece of coal. No first aid given. Treated by company doctor March 16. Diagnosis: Laceration of left cornea over pupil. Treatment: This man went on his own acord to Dr. Buckman of Wilkes-Barre, after two visits he remained home and used drops. Closed March 19. To work March 20; thirty-seven days. (Cornea perfectly clear.)

Case 11.—A. B. Employed at the Taylor Mines. Injured Feb. 14, 1916, by being struck in the left eye by a piece of coal. No first aid given. Treated by company doctor February 15. Hospital February 16. Diagnosis: Traumatic conjunctivitis with dislocated lens, forward probably. Treatment: Argyrol 20 per cent. Boric acid, cold compresses and cathartic. Closed February 24. To work February 24; eleven days.

Case 12.—J. C. Employed at the Bellevue Mines. Injured Feb. 14, 1916, by a broken cable of motor coming into contact with iron causing sparks to fly off, some of which entered the right eye. No first aid given. Went to hospital February 14. Diagnosis: Foreign body in eye near pupil. Eye inflamed and tender. Treatment: Foreign body removed. Boric acid, yellow oxid ointment. Closed ? To work February 16; two days.

Case 13.—F. C. Employed at the Woodward Breaker. Injured Feb. 14, 1916, by being struck in the right eye by a piece of coal. No first aid given. Treated by company doctor February 14. Diagnosis: A light scratch over eye, piece of coal lodged in eyeball. Treatment: Removed coal under cocain. Gave him "eye wash." Closed February 21. To work February 21; seven days.

Case 14.—J. T. Employed at the Pyne Mine. Injured Feb. 15, 1916. Did not know how he was injured, first he felt was a severe pain in eye. No first aid given. Treated by company doctor February 15. Diagnosis: Slight injury to right eye causing considerable inflammation. Treatment: Sul. zinc and cocain solution. Closed February 16; no disability.

Case 15.—S. P. Employed at the Bliss Mine. Injured Feb. 16, 1916, by being struck in the right eye by a piece of coal. No first aid given. Treated by company doctor February 17. Diagnosis: Severe conjunctivitis. Treatment: Applied eye lotion. Closed February 18; three days.

Case 16.—J. K. Employed at the Taylor Mines. Injured Feb. 16, 1916, by being struck in the right eye by a piece of coal. No first aid given. Treated by company doctor February 18. Diagnosis: Conjunctivitis of right eye. Treatment: Zinc sol. and sol. cocain. Closed February 18; no disability.

Case 17.—B. M. Employed at the Truesdale Mines. Injured Feb. 19, 1916, by being struck in the left eye by a piece of coal. No first aid given. Went to hospital February 22. Diagnosis: Abrasion of cornea of left eye. Treatment: Cauterized, atrop. sulph., boric acid sol., irrigations, argyrol 20 per cent., hot compresses q. 4 h. Closed ? (Left the hospital February 29.) To work (?); seven days (?).

Case 18.—R. P. Employed at the Taylor Breaker. Injured Feb. 21, 1916, by being struck in the right eye by a piece of coal. No first aid given. Treated by company doctor February 22. Diagnosis: Eye slightly injured. Redness, pain, etc. Treatment: Eye lotion and cold compresses. Closed February 24. To work February 24; three days.

Case 19.—D. W. Employed at Woodward Mines. Injured Feb. 21, 1916, by a trolley wire rebounded and hit left eye. No first aid given. Treated by company doctor February 21. Diagnosis: Small laceration of conjunctiva, some swelling. Treatment: Eye wash, gauze and bandage over the eye. Closed February 24; three days.

Case 20.—F. D. Employed at Auchincloss Mine. Injured Feb. 24, 1916, by a piece of coal flying in the right eye. No first aid given. Treated by company doctor February 25. Diagnosis: Piece of coal dirt in eye. Moderate conjunctivitis. Treatment: Removed dust from eye. Lotion for eye. Closed February 28; four days.

Case 21.—B. L. Employed at the Continental. Injured Feb. 25, 1916, by being struck in the left eye by a piece of coal. No first aid given. Went to hospital February 25. Diagnosis: Foreign body in eye; traumatic conjunctivitis and prolapse of iris. Treatment: Prolapsed iris resected, argyrol 25 per cent., and boric irrigations. Remarks: D. R. Reese's letter of April 6 to Dr. J. M. W. states that records show that this man sustained an injury to the eye, but that his vision is nearly normal and would not interfere with his work, but that B. L. claims to have lost the sight of this eye and asks for further examination. Memorandum of April 7: Dr. G. D. M. still insists that eye is practically normal and that man is faking if he states he cannot see. Closed March 15; nineteen days.

Case 22.—A. B. Employed at the Loomis Colliery. Injured Feb. 29, 1916, while throwing out air-pipe with wood alcohol, air blew alcohol in eyes. First aid given. Treated by company doctor February 29. Diagnosis: Wood alcohol burns of both eyes. Treatment: Lotion. Closed March 1; two days.

Case 23.—W. G. Employed at the Bliss Mines. Injured March 6, 1916, by a piece of emery or steel flying in the left eye. First aid given. Treated by company doctor March 6. Diagnosis: Piece of steel or emery in the left eye. Treatment: Foreign body removed. Closed March 7; no disability.

Case 24.—Jos. C. Employed at Storrs, No. 22. Injured March 8, 1916, by being struck in the left eye by a piece of coal. No first aid given. Treated by company doctor March 9. Diagnosis: Foreign body about size of head of pin on inferior nasal border of cornea of left eye. Treatment: Foreign body removed. Boric irrigations. Closed March 11; three days.

Case 25.—M. S. Employed at Hallstead Colliery. Injured March 9, 1916, by being struck in the right eye by a piece of coal. First aid (?). Treated by company doctor March 15. Hospital March 15. Diagnosis: Corneal ulcer. Eye hazy. Cannot see out of right eye. Treatment: Ulcer cauterized. Hot applications. Boric irrigations. Remarks: This man did not consult physician until nearly a week after injury. It was first thought he might lose the sight of right eye. Final reports shows eye O. K., L. 20/30, R. 20/70. Closed April 15; thirty-eight days.

Case 26.—O. S. Employed at the Dodge Mines. Injured March 10, 1916, by being struck in the left eye by a piece of coal. No first aid given. Went to hospital March 13. Diagnosis: Corneal ulcer in left eye. No vision in eye. Treatment: Patient refused to stay in hospital for proper treatment. Remarks: Patient neglected injury for three days, also refused to stay in hospital for proper treatment. At Dr. J. M. W.'s request Dr. Wall went to patient's house and found he had returned to work without orders. His wife states that his eye is a big white spot and that he can see nothing out of it. Closed (?); five days.

Case 27.—A. A. Employed at Storrs No. 2. Injured March 10, 1916, working and dust flew in the right eye. No first aid given. Treated by company doctor March 11. Diagnosis: Small piece of coal in eye, outer edge cornea. Treatment: Cocain 4 per cent., body removed with ease. Boric acid. Closed March 13; no disability.

Case 28.—T. R. G. Employed at the Diamond Mines. Injured March 11, 1916, by being struck in the left eye by a piece of coal. No first aid given. Went to hospital March 3. Diagnosis: Two foreign bodies in the eye producing traumatic conjunctivitis. Treatment: Foreign bodies removed. Argyrol 25 per cent. and boric eye wash. Closed March 13; no disability.

Case 29.—J. M. Employed by the Scranton Coal Co. Injured March 13, 1916, by being struck in the right eye by a piece of coal. First aid (?). Went to hospital March 20. Diagnosis: Foreign body cornea-scleral junction right eye. Treatment: Foreign body removed. Argyrol and boric acid solution. Closed March 21; nine days.

Case 30.—J. N. Employed at the Loomis. Injured March 15, 1916, by a piece of rock flying and striking him in the eye. First aid was given. Treated by company doctor March 17. Diagnosis: A laceration of the eyeball. Treatment: Cleaned out and dressed with boric acid. Closed March 19. To work March 20; five days.

Case 31.—J. K. Employed at the Continental. Injured March 17, 1916, by a piece of rock flying and striking him in the left eye. No first aid given. Went to hospital March 28. Diagnosis: Foreign body in the eye. Marked conjunctivitis. Treatment: Foreign body removed. Argyrol and boric acid. Remarks: Nearly two weeks before he had attention of a physician. Report of March 29 shows bulbar congestion, cornea clear, lens O. K., pupil O. K., prognosis good, may probably have some intra-ocular injury. Report of March 31 "O. K." Closed April 3; seventeen days.

Case 32.—C. H. Employed at the Diamond Mines. Injured March 17, 1916, by being struck by a piece of coal in the left eye. No first aid given. Treated by company doctor March 18. Diagnosis: Contused eye and conjunctivitis. Treatment: Boric acid solution. Closed March 19; three days.

Case 33.—Geo. G. Employed at Hyde Park. Injured March 18, 1916, while pouring hot lead some splashed in the right eye. No first aid given. Treated by company doctor March 18. Diagnosis: Burn of right conjunctiva. Treatment: Boric irrigations, atropin solution instilled, yellow oxid, pad. Closed March 20; three days.

Case 34.—Wm. R. W. Employed at the Sloane Mines. Injured March 21, 1916, by a piece of drill flying and striking the left eye. No first aid given. Treated by company doctor (R. T. W.) March 27. Diagnosis: Two small corneal ulcers in left eye. Treatment: Argyrol, rest in bed and cathartic. Remarks: This man had been treating himself at home. Dr. Wall took him up to the hospital. Dr. G. D. M. reports March 27, prognosis poor for sight. Report of March 29 shows iritis complicating corneal ulcers, tension slightly increased. Report of April 12, ulcer cauterized, still some inflammation, small foreign body in eye removed. May 5, eye O. K. for work, G. D. M. Dr. Wall who was called on this case says this is plainly a case where neglect in the early stage caused all this trouble. Closed May 5; forty-six days.

Case 35.—Jos. L. Employed at the Cayuga. Injured March 21, 1916, when throwing an electric switch a spark flew in his eye. First aid (?). Treated by company doctor March 23. Diagnosis: Foreign body in the eye. Ulcer. Treatment: Cocain, ulcer cauterized, atropin, yellow oxid and pad on eye. Closed March 27; seven days.

Case 36.—L. B. Employed at Storrs No. 1. Injured March 24, 1916, by being struck in the left eye by a piece of coal. No first aid given. Went to hospital March 30. Diagnosis: Corneal ulcer of the left eye. Lacerated conjunctiva. Treatment: Argyrol, boric acid irrigations. Closed April 15; twenty-two days.

Case 37.—Wm. D. Employed at the Hyde Park Mines. Injured March 25, 1916, by being struck in the left eye by a piece of coal. No first aid given. Went to hospital March 27. Diagnosis: Corneal ulcer of left eye. Marked conjunctivitis. Treatment: Ulcer cauterized. Argyrol and atropin to eye. Boric acid. Closed April 25; thirty-one days.

Case 38.—J. B. Employed at the Dodge Mines.

Injured March 27, 1916, a piece of rock flew and struck him in the eye. No first aid given. Treated by company doctor March 29. Diagnosis: Corneal ulcer right eye. Treatment: Cocain 4 per cent. Ulcer cauterized with heat, yellow oxid ointment, pad on eye. Closed April 22; twenty-seven days.

Case 39.—J. N. Employed at the Bellevue. Injured March 28, 1916, by being struck in the left eye by a piece of coal. No first aid given. Treated by company doctor March 29. Diagnosis: Scratch on left cornea. Slight conjunctivitis. Treatment: Boric irrigation, atropin, yellow oxid ointment and pad on the eye. Closed April 3; seven days.

Case 40.—J. H. H. Employed at Electrical Department of Mines. Injured March 28, 1916, after taking a nap at noon when he wakened his eyes were sore. First aid was given. Went to hospital March 28. Diagnosis: Foreign bodies in both eyes. Treatment: Foreign bodies removed. Argyrol. Closed March 29; no disability.

Case 41.—M. R. Employed at the Taylor Colliery. Injured March 29, 1916, by being struck in the left eye by a piece of coal. No first aid given. Treated by company doctor March 30. Diagnosis: Lacerated eye. Treatment: Boric acid, cold compresses and argyrol. Closed April 4; seven days.

Case 42.—A. L. Employed at Storrs No. 3. Injured March 20, 1916, by being struck in the right eye by a hammer handle. No first aid given. Treated by company doctor March 30. Diagnosis: Lacerated eyelid and hemorrhage. Treatment: Boric acid and Compresses. Closed April 5; fourteen days.

Case 43.—A. L. Employed at Hyde Park Mines. Injured March 31, 1916, by being struck in the right eye by a piece of coal. First aid (?). Was first treated at Dr. Thomson's Hospital. Went to Moses Taylor April 11. Diagnosis: Bulbar conjunctivitis. Treatment: Boric acid irrigations, argyrol. Remarks: This man was referred to Dr. G. D. M. for a thorough examination and he reports to Dr. J. M. W. (April 27): Right eye blind, left eye vision 20/50, that in his opinion it is a case of simple chronic glaucoma and shows no evidence of being connected with any injury. Patient should be put under suitable treatment for glaucoma, otherwise the vision will go in the left eye. Dr. J. M. W. makes memorandum that does not think this man entitled to any compensation, his alleged injury was trivial and should not have laid him off more than a few days at the outside. This simply led him to seek treatment, the injury having called his attention to this eye disease. Closed April 27; twenty-eight (?) days.

Case 44.—A. C. Employed at the Bellevue Mines. Injured March 31, 1916, by being struck in the right eye by a piece of coal. No first aid given. Went to hospital April 4. Diagnosis: Contused upper eyelid. Treatment: Boric acid irrigations. Argyrol. Closed April 5; no disability.

Case 45.—T. L. Employed at the Bellevue Mines. Injured April 3, 1916, by being struck in the right eye by a piece of coal. First aid was given. (First treatment given by own physician.) Went to hospital April 28. Diagnosis: Corneal ulcer of right eye. Treatment: Ulcer cauterized. Boric acid irrigations. Argyrol. Remarks: Dr. G. D. M. reports, May 17, slight blurred spot on eye which will not clear up. July 27 Dr. G. D. M. again examined this man and reports the right eye is healed but there is a slight impairment of vision, straight vision being 20/100 in the right eye and lateral vision somewhat better than this. This condition will not progress, if anything it will improve slightly. Even in present condition the eye need not interfere with this man's regular work as miner. August 2 Dr. G. D. M. reports vision likely to remain unchanged. Patient claims it is getting worse. Memorandum: Patient states that the company will have to do something for him as he cannot work on account of his eyes. Closed April 30; twenty-eight days.

Case 46.—F. P. Employed at the Bliss Mines. Injured April 3, 1916, by being struck in the left eye by a piece of coal. No first aid given. Treated by company doctor April 4. Diagnosis: Contusion of the left eye. Treatment: Boric acid irrigation, instilled atropin, gave eye lotion. Closed April 9; seven days.

Case 47.—F. B. Employed at the Pyne Mines. Injured April 7, 1916, by being struck in the right eye by a piece of coal. First aid bandaged the eye. Diagnosis: Inflammation right eye. Treatment: Zinc sul. in cocain sol. to be dropped in the eye. Closed April 7; no disability.

Case 48.—V. N. Employed at Storrs No. 5. Injured April 12, 1916, by being struck in the right eye by a piece of coal. No first aid given. Went to hospital April 12. Diagnosis: Foreign body in right eye. Treatment: Foreign body removed. Boric acid, argyrol. Closed April 12; no disability.

Case 49.—A. S. Employed at the Continental Mines. Injured April 15, 1916, by being struck in the right eye by a piece of coal. No first aid given. Went to hospital April 17. Diagnosis: Abrasion of cornea, Conjunctivitis. Treatment: Boric acid irrigations, argyrol, pad and bandage to eye. Closed April 19; four days.

Case 50.—M. S. Employed at Storrs No. 3. Injured April 17, 1916, by being hit in the right eye by a piece of coal. No first aid given. Went to hospital April 20. Diagnosis: Foreign body in right eye. Treatment: Foreign body removed. Boric acid solution and argyrol. Closed April 28; nine days.

Case 51.—Wm. G. Employed at the Bellevue. Injured April 25, 1916, by being struck in the left eye by a piece of coal. No first aid given. Went to hospital April 27. Diagnosis: Traumatic conjunctivitis. Photophobia. Treatment: Boric irrigations. Argyrol. Remarks: When first treated the eye was very painful. Closed April 30; six days.

Case 52.—H. W., Employed at the Diamond. Injured April 26, 1916, by coal dust getting in the eye. No first aid given. Treated by company doctor April 26. Diagnosis: Conjunctivitis. Treatment: Cocained and removed coal with needle. Closed April 30; five days.

Case 53.—M. G. Employed at the Hyde Park Mines. Injured April 27, 1916, by being struck in the left eye by a piece of coal. No first aid given. Went to hospital April 28. Diagnosis: Bulbar conjunctivitis. Treatment: Boric acid irrigations and argyrol. Closed April 29; three days.

Case 54.—T. F. Employed at the Pyne. Injured April 27, 1916. In standing props cap fell off and struck below eye. No first aid given. Treated by company doctor April 29. Diagnosis: Conjunctivitis.

Treatment: Local applications. Closed May 5; four days.

Case 55.—W. A. Employed at Storrs No. 1. Injured April 29, 1916, by being struck in the right eye by a piece of coal. No first aid given. Treated by company doctor May 2. Diagnosis: Coal in the eye. (Infectious.) Treatment: Cocain 4 per cent., removed piece of coal, boric acid wash. Closed May 9; no disability.

Case 56.—F. J. Employed at Pettebone 3 and 4. Injured April 30, 1916, by a piece of coal flying in the right eye. No first aid given. Treated by company doctor May 5. Diagnosis: Conjunctivitis of right eye. Treatment: Boric acid atropin solution. Closed May 7; nine days.

Case 57.—E. J. Employed at the Bliss Mines. Injured May 5, 1916, by being struck in the left eye by a piece of coal. No first aid given. Treated by Dr. Buckman of Wilkes-Barre, May 12. Diagnosis: Corneal ulcer and conjunctivitis. Remarks: Dr. B. reports, July 22, that this man came to him May 12, with a history of the left eye having been "sore for a week." His eye was in a very bad condition; he suffered intense pain. At the time he came he gave no history of having been injured, but as you know corneal ulcer is usually the result of an injury to cornea by a foreign body. I presume that he was actually injured at work. He reports July 22 that he can now go to work at any time. There is some impairment of vision owing to the extensive suppuration of the cornea, etc. Closed July 25; eighty-three days. (Also Dr. Bennet's case.)

Case 58.—A. Y. Employed at the Diamond. Injured May 8, 1916, by being struck in the left eye by a piece of coal. No first aid given. Went to hospital May 8. Diagnosis: Conjunctivitis, lacerated conjunctiva. Treatment: Boric acid irrigations, argyrol and cold compresses. Closed May 15; eight days.

Case 59.—J. D. Employed at the Woodward. Injured May 8, 1916, by a piece of rock falling and striking left eye. First aid was given. Treated by company doctor May 8. Diagnosis: Lacerated cornea of left eye. Treatment: Atropin and boric acid solution, gauze pad and bandage. Closed May 15; eight days.

Case 60.—J. S. Employed at Storrs No. 3. Injured May 12, 1916, by being struck in the left eye by a piece of coal. No first aid given. Went to hospital May 13. Diagnosis: Foreign body in left eye. Treatment: Foreign body removed. Boric acid solution and argyrol. Closed May 15; five days.

Case 61.—J. R. Employed at Storrs No. 1. Injured May 13, 1916, by being struck in the left eye by a piece of coal. No first aid given. Treated by company doctor May 14. Diagnosis: Congested eye. Treatment: Boric acid eye wash, hot boric acid compresses. Closed May 17; no disability.

Case 62.—P. D. Employed at the Woodward Mines. Injured May 15, 1916, by being struck in the left eye by a piece of coal. First aid was given. Treated by company doctor May 15. Diagnosis: Lacerated cornea and prolapsed iris. Treatment: Sent to hospital May 16. Atropin, cold compresses, iridectomy, rest in bed and cathartic. Remarks: It was first thought that this man might not regain perfect vision. Report of May 25, left pupil deformed, but vision practically normal. Closed May 25; eleven days.

Case 63.—S. B. Employed at the Continental. Injured May 17, 1916, by a piece of rock flying and striking the left eye. No first aid given. Treated by company doctor May 18. Diagnosis: Foreign body in left eye. Treatment: Sent to hospital to have foreign body removed. Closed May 20; four days.

Case 64.—R. S. Employed at Storrs No. 2. Injured May 17, 1916, by being struck in the right eye by a piece of coal. No first aid given. Treated by company doctor May 20. Diagnosis: Foreign body in the eye. Treatment: Cocain; removed piece of coal. Boric acid wash. Closed May 20; three days.

Case 65.—T. C. Employed at the Archbald Colliery. Injured May 18, 1916, by a piece of coal flying in the left eye. No first aid given. Went to hospital May 20. Diagnosis: Corneal ulcer of left eye. Photophobia. Treatment: Cold compresses. Boric acid and argyrol. Closed May 31; thirteen days.

Case 66.—A. V. Employed at the Taylor Mines. Injured May 18, 1916, by being struck in the left eye by a piece of coal. No first aid given. Went to hospital May 20. Diagnosis: Traumatic conjunctivitis. Treatment: Boric acid irrigations, argyrol. Closed June 3; fifteen days.

Case 67.—J. C. Employed at the Central Mines. Injured May 19, 1916, while drilling with a machine something struck him in left eye. No first aid given Went to hospital May 20. Diagnosis: Foreign body in the left eye. Treatment: Foreign body removed. Boric acid and argyrol. Closed May 21; three days.

Case 68.—J. V. Employed at the National. Injured May 22, 1916, by being struck in the left eye by a piece of coal. No first aid given. Went to hospital May 27. Diagnosis: Corneal ulcer. Traumatic conjunctivitis. Treatment: Argyrol and boric acid. Ulcer cauterized. Remarks: Did not seek medical attention until five days after injury. Closed June 17; twenty-six days.

Case 69.—E. K. Employed at the Truesdale. Injured May 24, 1916, by being struck in the eye by a piece of coal. First aid given. Treated by company doctor May 24. Diagnosis: Traumatic conjunctivitis. Treatment: Solution boric acid, adrenalin and cocain, dark glasses. Closed June 2; ten days.

Case 70.—J. C. Employed at the Diamond Mines. Injured May 25, 1916, a boy threw a coat at him striking him in the eye. No first aid given. Treated by company doctor May 27. Diagnosis: Conjunctivitis. Treatment: Boric acid solution. Closed May 27; four days.

Case 71.—P. W. Employed at the Auchincloss. Injured May 28, 1916, while working on a motor, hooked a wire on a switch causing a blinding flash. First aid was given. Treated by company doctor May 28. Diagnosis: Inflammation of both eyes. Treatment: Application of lotion. Closed May 30; three days.

Case 72.—E. S. Employed at the Loomis. Injured May 29, 1916, by being struck in the left eye by a piece of steel. First aid was given. Treated by company doctor May 29. Diagnosis: Lacerated eyeball. Treatment: Lotion applied. Closed May 30; two days.

Case 73.—A. C. Employed at National Mines. Injured May 31, 1916, by being struck in the right eye by a piece of coal. No first aid given. Went to hospital May 31. Diagnosis: Foreign body in eye; slight laceration of cornea. Treatment: Foreign body removed, boric acid irrigations and argyrol. Closed June 15; sixteen days.

Case 74.—S. W. Employed at the Bellevue. Injured June 1, 1916, by being struck in the left eye by a piece of coal. First aid was given. Went to hospital June 2. Diagnosis: Traumatic conjunctivitis. Treatment: Boric acid irrigations. Closed June 4; five days.

Case 75.—M. A. Employed at Pine Brook Mines. Injured June 2, 1916, by being struck in the right eye by small piece of emery. First aid (?). Went to hospital June 3. Diagnosis: Foreign body in right eye. Treatment: Foreign body removed. Boric acid and argyrol. Closed June 4; three days.

Case 76.—D. D. Employed at New Shops (M. Dept.). Injured June 3, 1916, by being struck in the right eye by a piece of emery. No first aid given. Went to hospital June 6. Diagnosis: Corneal ulcer of right eye. Treatment: Emery removed. Ulcer cauterized. Boric acid and argyrol. Closed (?); one day.

Case 77.—J. M. Employed at the Dodge. Injured June 3, 1916, by a small piece of cast iron hitting the right eye. First aid was given. Treated by company doctor June 3. Diagnosis: Lacerated eye. Treatment: Cocain; foreign body removed. Boric irrigation and yellow oxid ointment; pad on eye. Closed June 4; two days.

Case 78.—M. M. Employed at the Truesdale. Injured June 3, 1916, by a piece of coal flying in the left eye. No first aid given. Treated by company doctor June 5. Diagnosis: Lacerated eyeball. Treatment: Eye lotion and rest. Closed June 7; five days.

Case 79.—J. B. Employed at the Woodward. Injured June 3, 1916, by hot grease splashing into right eye. No first aid given. Treated by company doctor June 3. Diagnosis: Acute conjunctivitis. Treatment: Solution of boric acid, atropin and cocain. Closed June 5; three days.

Case 80.—H. T. Employed as traveling machinist. Injured June 4, 1916, by a small piece from cast iron flange cutting the eye. First aid was given. Treated by company doctor June 4. Diagnosis: Lacerated eye; blood in anterior chamber. Treatment: Sterile pad on eye and took in automobile to hospital. Remarks: At first thought might be laceration of the iris. Vision was hazy. When closed reported as O. K. Closed June 14; eleven days.

Case 81.—E. M. Employed at the Sloan Mines. Injured June 5, 1916, by being struck in the left eye by a small piece of coal. No first aid was given. Went to hospital June 15. Diagnosis: Corneal ulcer. Treatment: To bed, atropin sulphate, argyrol, cold to part. Remarks: Worked ever since injury and neglected eye (ten days). When closed vision in right eye 20/40. Vision, left eye, 20/100. Ulcer healed, no inflammation. Closed July 10; thirty-six days.

Case 82.—P. C. Employed at the Woodward Mines. Injured June 5, 1916, by being struck in the eye by a piece of coal. No first aid given. Treated by company doctor June 6. Diagnosis: Conjunctivitis. Treatment: Boric acid, cocain and atropin solution. Closed June 12; eight days.

Case 83.—S. L. Employed at Pine Brook. Injured June 4, 1916, by being struck in the left eye by a piece of coal. First aid (?). Treated by family doctor (?). Went to hospital June 6. Diagnosis: Traumatic conjunctivitis. Treatment: Boric acid and argyrol. (Foreign body removed by Dr. Zychowicz.) Closed June 18; fifteen days.

Case 84.—M. L. Employed at the Archbald. Injured June 8, 1916, by being struck in the left eye by a piece of coal. First aid (?). Treated by company doctor June 11. Diagnosis: Lacerated eye. Treatment: Saturate solution of boric acid. (Protargol 5 per cent. solution.) Remarks: This man treated himself at home until June 11. When closed the eye was normal. Closed June 15; seven days.

Case 85.—W. B. Employed at the Sloan Mines. Injured June 9, 1916, while chipping coal a piece struck him in the right eye. No first aid given. Treated by company doctor June 10. Diagnosis: Inflammation of right eye. Treatment: Local application. Closed June 10; no disability.

Case 86.—A. M. Employed at Storrs No. 3. Injured June 10, 1916, by being struck in the left eye by something. No first aid given. Went to hospital June 17. Diagnosis: Conjunctivitis. Treatment: Boric irrigations. Argyrol. Remarks: Last report shows no pain in eye, eye O. K., 20/20 both eyes. Closed June 19; nine days.

Case 87.—W. M. Employed at New Shops (M. Dept.). Injured June 12, 1916, when an iron scale flew and struck him in the left eye. No first aid was given. Went to hospital June 13. Diagnosis: Foreign body in the eye. Treatment: Foreign body removed. Boric acid and argyrol. Closed June 13; no disability.

Case 88.—S. R. Employed at the Pyne Mines. Injured June 12, 1916, by being struck in the left eye by a piece of coal. No first aid given. Treated by company doctor June 12. Diagnosis: Conjunctivitis. Treatment: Not given. Closed June 12; one day.

Case 89.—J. G. Employed at the Pyne Mines. Injured June 19, 1916, by being struck in the left eye by a piece of coal. First aid was given. Treated by company doctor June 20. Diagnosis: Slight conjunctivitis. Treatment: Astringent and cocain. Closed June 20; no disability.

Case 90.—F. S. Employed at the Cayuga Mines. Injured June 19, 1916, by being struck in the left eye by a piece of coal. No first aid was given. Treated by company doctor June 19. Diagnosis: Conjunctivitis. Treatment: Washed eye with boric acid solution. Closed June 20; two days.

Case 91.—J. K. Employed at the Bellevue. Injured June 20, 1916, while breaking rocks something flew into his eye. No first aid given. Treated by company doctor June 21. Diagnosis: Foreign body in the eye. Treatment: Cocain 4 per cent., foreign body removed; atropin, boric acid eye wash and pad on the eye. Closed June 24; six days.

Case 92.—J. Y. Employed at the Hallstead Mines. Injured June 21, 1916, by being struck in the right eye by a piece of coal. No first aid given. Went to hospital June 24. Diagnosis: Large corneal ulcer. Marked conjunctivitis. Treatment: Eye cauterized; argyrol and boric acid irrigations. Bed. Remarks: Patient says he went first to his lodge doctor, who did not treat his eye. It was first thought he might lose sight of eye, or probably have some impairment of vision. Could not see out of eye. Last report shows vision, right eye 20/50; left eye 20/30. Ulcer healed O. K. Closed July 8; seventeen days.

Case 93.—W. J. Employed at the Diamond No. 2. Injured June 23, 1916, by being struck in the left eye by a piece of coal. First aid given (by patient) (?). Went to hospital June 30. Diagnosis: Traumatic conjunctivitis. Treatment: Boric acid and argyrol. Remarks: Patient treated himself at home, but eye did not get better. Closed July 18; twenty-one days.

Case 94.—A. N. Employed at Storrs No. 3. Injured June 22, 1916, by being struck in the right eye by a piece of coal. No first aid given. Went to hospital July 3. Diagnosis: Foreign body in right eye. Treatment: Foreign body removed. Boric acid and argyrol. Closed July 4; thirteen days.

Case 95.—E. M. Employed at Electric Repair Shop. Injured June 23, 1916, while testing a meter a short circuit occurred followed by a flash which struck both eyes and dazed him for a short time. No first aid given. Went to hospital June 25. Diagnosis: Conjunctivitis. (Sight not impaired.) Treatment: Argyrol and boric acid irrigations. Closed June 26; four days.

Case 96.—M. C. Employed at the Pyne. Injured June 27, 1916, by being struck in the left eye by a piece of coal. No first aid given. (Treated by own physician.) Went to hospital June 29. Diagnosis: Foreign body in left eye. Treatment: Foreign body removed. Boric acid and argyrol. Remarks: This man left the hospital, June 28, apparently O. K., since that he has had photophobia, been working over a week and came in when it was noticed; he has central brown cup-shaped depression in the cornea that apparently has not healed on account of discoloration from having foreign body removed. The discoloration was scraped and eye cauterized July 20 (by Dr. G. D. M.). Closed July 27; thirty-one days.

Case 97.—J. K. Employed at the Dodge. Injured June 28, 1916, by being struck in the right eye by a piece of coal. No first aid given. Went to hospital June 30. Diagnosis: Traumatic conjunctivitis. Treatment: Boric acid and argyrol. Remarks: Patient complained of inability to see, but shows no evidence of defective vision. Closed July 11; fifteen days.

Case 98.—P. R. Employed at the National. Injured June 26, 1916, by being struck in the left eye by a piece of coal. No first aid given. (Treated by own physician.) Company doctor June 29. Diagnosis: Lacerated cornea. (Infected from June 27 to 28.) Treatment: Pupil dilated. Yellow oxid ointment and pad on eye. Closed July 1; four days.

Case 99.—J. M. Employed at the Diamond. Injured June 22, 1916, by something flying into the left eye. No first aid given. Went to hospital June 23. Diagnosis: Traumatic conjunctivitis. Treatment: Boric acid irrigations. Closed June 27; six days.

Case 100.—E. G. Employed at the Pyne. Injured June 28, 1916, by being struck in the right eye by a piece of coal. No first aid given. Treated by company doctor June 28. Diagnosis: Inflammation of left eye. Treatment: Astringent and cocain. Closed June 29; no disability.

Case 101.—P. W. Employed at the Pyne. Injured June 30, 1916, by a mule kicking some dirt in right eye. No first aid given. Treated by company doctor June 30. Diagnosis: Inflammation of right eye. Treatment: Local application. Astringent and cocain. Closed June 30; one day.

Case 102.—P. S. Employed at the Brisbin. Injured May 29, 1916, by being burned with gas on face and eyes. First aid (?). Went to hospital May 29. Diagnosis: Second degree burns of eye. Treatment: Atropin, argyrol and sterile liquid petrolatum in eye three times a day. Closed (?); (?) days. Dr. J. M. W. reports, August 7, one eye normal; one eye vision much impaired. It will be several weeks yet before able to work.

DISCUSSION

Dr. William Campbell Posey, Philadelphia: Dr. Murray has done well to emphasize the importance to patient and employer of immediate professional care of every injury, no matter how slight. He has shown that those who reported promptly had an average disability of six and one-half days and, what is more important, recovered with healthy eyes.

Now eighteen of the 102 men treated were foolish and for some reason or other did not apply for treatment until from five to ten days after the injury, and note the result. Of these eighteen, thirteen developed foul ulcers of the eyes, which caused an average disability of thirty-one days and impairment of vision for life, indeed one eye was lost and another rendered totally blind. There was a total loss to the company of $3,106, but what untold and useless suffering and loss to the men themselves.

But the story is only half told. For, after convalescence is past and the men are able to return to work, it will be noted that they have suffered great loss in earning power. They cannot see to do their own work as well, and they have increased the risk of accident to themselves and the men who work near them. Should they seek a new position elsewhere, they may have difficulty in obtaining one on account of lowered vision. Dr. Murray proposes the remedy of compelling each employee when injured to receive immediate treatment or recover no indemnity from his employer. I had a conversation with Mr. Bohlen, the attorney for the Compensation Board, a few days ago, with a view to ascertain whether he considered the passage of a law embodying the suggestion of Dr. Murray as feasible. He informed me, however, that he did not, and that in his opinion the solution of this problem consisted in a campaign of education to make the men comprehend the danger of procrastination and to appreciate the desirability, indeed the necessity, of seeking immediate medical aid. Our Commission for the Conservation of Vision, therefore, must be active in this service of education, and employers as well as employees must be taught the necessity of prompt action. Warning placards in various languages should be posted in prominent positions about the places of occupation, and talks with stereopticon views to illustrate the text of the speaker should be given in all large industrial establishments at stated intervals, by properly informed persons.

As far as I have been able to judge of the effect of the law from my personal experience; it appears to be admirably constituted. There are many details (such as the one referred to by Dr. Murray) in determining how much vision a man must lose before he can obtain full compensation, which demand per-

Case	Nature of Injury	First Aid	First Treatment	No. of Days
102	Burn of eyes	?	Hospital	?
43	B. conjunctivitis	?	Other doctor	?
57	C. ulcer	No	Other doctor	83
34	C. ulcers	No	Company doctor	46
25	C. ulcer	?	Company doctor	38
10	Lacerated eye	No	Company doctor	37
81	C. ulcer	No	Hospital	36
96	Foreign body	No	Other doctor	31
37	C. ulcer	No	Hospital	31
6	C. ulcer	No	Hospital	30
45	C. ulcer	Yes	Other doctor	28
38	C. ulcer	No	Company doctor	27
68	C. ulcer	No	Hospital	26
36	C. ulcer	No	Hospital	22
93	T. conjunctivitis	?	Hospital	21
21	Prolapse of iris—foreign body	No	Hospital	19
31	Foreign body	No	Hospital	17
92	C. ulcer	No	Hospital	17
73	Foreign body	No	Hospital	16
8	T. conjunctivitis	No	Company doctor	15
83	T. conjunctivitis	No	Other doctor	15
66	T. conjunctivitis	No	Hospital	15
97	T. conjunctivitis	No	Hospital	15
42	Lacerated eye	No	Company doctor	14
1	Congested eye	Yes	Hospital	13
65	C. ulcer	No	Hospital	13
94	Foreign body	No	Hospital	13
11	Conjunctivitis—dislocated lens	No	Company doctor	11
62	Prolapsed iris—lacerated cornea	Yes	Company doctor	11
80	Lacerated eye	Yes	Company doctor	11
4	Inflamed eyeball	No	Company doctor	10
69	T. conjunctivitis	Yes	Company doctor	10
29	Foreign body	?	Hospital	9
50	Foreign body	No	Hospital	9
56	Conjunctivitis	No	Company doctor	9
86	Conjunctivitis	No	Hospital	9
58	Lacerated conjunctiva—conjunctivitis	No	Hospital	8
59	Lacerated cornea	Yes	Company doctor	8
82	Conjunctivitis	No	Company doctor	8
13	Foreign body	No	Company doctor	7
17	Abrasion cornea	No	Hospital	7 (?)
35	Foreign body	?	Company doctor	7
39	Conjunctivitis	No	Company doctor	7
41	Lacerated eye	No	Company doctor	7
46	Contusion	No	Company doctor	7
84	Lacerated eye	?	Company doctor	7
51	T. conjunctivitis	No	Hospital	6
91	Foreign body	No	Company doctor	6
99	T. conjunctivitis	No	Hospital	6
26	C. ulcer	No	Hospital	5
30	Lacerated eyeball	Yes	Company doctor	5
52	Conjunctivitis	No	Company doctor	5
60	Foreign body	No	Hospital	5
74	T. conjunctivitis	Yes	Hospital	5
78	Lacerated eyeball	No	Company doctor	5
2	Foreign body	No	Hospital	4
20	Foreign body	No	Company doctor	4
49	Abrasion cornea	No	Hospital	4
54	Conjunctivitis	No	Company doctor	4
63	Foreign body	No	Company doctor	4
70	T. conjunctivitis	No	Company doctor	4
95	Conjunctivitis	No	Hospital	4
98	Lacerated cornea	No	Company doctor	4
3	Conjunctivitis	No	Company doctor	3
7	Conjunctivitis	No	Company doctor	3
15	Conjunctivitis	No	Company doctor	3
18	Inflammation	No	Company doctor	3
19	Lacerated eye	No	Company doctor	3
24	Foreign body	No	Company doctor	3
32	Contused eye	No	Company doctor	3
33	Burn conjunctivitis	No	Company doctor	3
53	Burn conjunctivitis	No	Hospital	3
64	Foreign body	No	Company doctor	3
67	Foreign body	No	Hospital	3
71	Inflammation both eyes	Yes	Company doctor	3
75	Foreign body	?	Hospital	3
79	Conjunctivitis	No	Company doctor	3
12	Foreign body	No	Hospital	2
22	Burn of both eyes	Yes	Company doctor	2
72	Lacerated eyeball	Yes	Company doctor	2
77	Lacerated eye	Yes	Company doctor	2
90	Conjunctivitis	No	Company doctor	2
5	Inflamed eye	No	Company doctor	1
76	C. ulcer	No	Hospital	1
88	Conjunctivitis	No	Company doctor	1
101	Inflamed eye	No	Company doctor	1
9	T. conjunctivitis	No	Hospital	0
14	Inflamed eye	No	Company doctor	0
16	Conjunctivitis	No	Company doctor	0
23	Foreign body	Yes	Company doctor	0
27	Foreign body	No	Company doctor	0
28	Foreign bodies	No	Hospital	0
40	Foreign bodies	Yes	Hospital	0
44	Contused eyelid	No	Hospital	0
47	Inflamed eye	Yes	?	0
48	Foreign body	No	Hospital	0
55	Foreign body	No	Company doctor	0
61	Congested eye	No	Company doctor	0
85	Inflamed eye	No	Company doctor	0
87	Foreign body	No	Hospital	0
89	Conjunctivitis	Yes	Company doctor	0
100	Inflamed eye	No	Company doctor	0
Totals	Foreign bodies 26	No 78	Hospital 40	
	Conjunctivitis 39	Yes 16	Company doctor 55	
	Burn of eyes 3	? 8	Other doctor 6	
	Ulcers 14	—	? 1	
	Lacerated 13	102		
	Abrasions 2		102	
	Contused and congested 5			
	102			

fection, but the general application seems to be much fairer to all concerned than obtained before the law went into effect.

Regarding treatment, I can only give approval to all Dr. Murray says, but I would especially commend his insistence that a bandage be applied after all injuries, no matter how trifling, until the epithelium is restored.

Dr. George H. Cross, Chester: I would like to ask if the question of how much vision must be lost before a man is entitled to compensation has been taken up, and also the question of what is a major eye operation. I understand that there is to be a committee appointed to determine this point for the society. I also inquire whether it would be proper for our section to discuss the question, and confer with the general society as to the matter, and also as to what constitutes the loss of an eye.

Dr. Clinton J. Kistler, Lehighton: I have quite a few of these eye cases of the simpler kind of mine injuries to treat. In regard to heat cauterization of these early injuries, I would say that it has always been the hardest thing for me to decide when to apply the cautery to a sterile injury, knowing that I must expect a deeper scar; whereas, sometimes when the cautery is not applied, the injury will heal without such serious loss of vision. I should like to know what Dr. Murray and Dr. Posey think the indications for the use of the cautery are in such early cases. The eyes injured with particles of coal seem to become more seriously infected than those from other injuries, and I am often puzzled as to when it is time for heat cauterization of an eye.

Dr. G. Edgar Dean, Scranton: It has been my practice not to apply the cautery at the outset, but to twist a little cotton around a probe, making a very sharp point to the cotton and dipping it into full-strength peroxid, to apply this directly to the wound under cocain anesthesia. If done once a day, this usually does away with the necessity for using the cautery at all.

Dr. G. R. S. Corson, Pottsville: It is a question as to whether a law would not be advisable compelling the injured persons to seek medical advice at once. A patient came to the hospital who had been to two other doctors before presenting himself there, and you can imagine the condition of the eye. It was a compensation case, and it seemed to me that there should be some way in which such persons should be taught or compelled to observe the ordinary rules of hygiene and give someone a chance to treat the eye intelligently and continuously.

It has been my practice, in the hard coal field, not to cauterize unless there was more or less sloughing. If the wound is clean and the rest of the cornea is clear, I do not think that it is good practice to cauterize such a wound.

Dr. Walter M. Reedy, Scranton: Dr. Murray spoke of cases in which the eye had been injured permanently, but not completely, and the vision was considerably reduced. We frequently have such cases submitted to us by the insurance companies. I should like to know what provision is made for such persons in the matter of permanent compensation. Dr. Murray mentioned their reduced eligibility for future employment. We know that many of them are capable of pursuing their former occupation, but with danger to themselves and to the company. I should like to know whether the companies make provision for the permanent compensation of their people on account of permanent injury, and what the degree of compensation is when the resulting condition is not total blindness but what Dr. Murray has described.

Dr. Clarence M. Harris, Johnstown: I have had some experience in mine injuries, and I agree with Dr. Dean that there apparently is no need for the cautery in the case of a primarily clean wound, and I have subsequently found no need for it in cases in which it was not employed at first, so far as my recollection goes.

I think that Dr. Corson's point is well taken; for I have frequently found cases in which the patient had gone the rounds of medical attendants and so-called ophthalmologists, and they are often in a dangerous condition.

Dr. G. Edgar Dean, Scranton: Regarding the production of corneal ulcer or infection by the removal of foreign bodies, I would say that I think the principal reason for this is that there is usually someone around who attempts to remove the foreign body with an unclean instrument. If the men could be instructed to cleanse the instruments with alcohol or otherwise disinfect them, there would be fewer cases of corneal ulcer following the removal of foreign bodies.

Dr. Murray, closing: Dr. Cross asked about what degree of loss of vision is considered as the loss of an eye. I took that matter up with a man in charge of the compensation work, and he said that so long as a man could see anything, he was not considered to have lost his eye.

In answer to Dr. Reedy's question, I would say that the Lackawanna Company, which employs twenty-three thousand miners, would favor a law that would give compensation to those miners who have lost part of their vision. This is but justice, they think. In fact, they are going to make such a suggestion to the Legislature.

As to the cauterization of recent wounds from foreign bodies, I said plainly in my paper that this is done only in the late removal of foreign bodies. Of course, you would not cauterize otherwise unless the wound is torn and dirty; but in belated removal, I think it is wise to cauterize the wound very gently.

516 Spruce Street.

DISAPPOINTMENTS FOLLOWING TONSILLAR OPERATIONS *

Ben Clark Gile, M.D.
PHILADELPHIA

That operation on the faucial tonsils has been and still is the occasion for much bad surgery must be regretfully admitted, and I beg to offer in the briefest way some suggestions on (1) the present delinquencies; (2) their causes; (3) their remedy.

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* Read before the Section on Eye, Ear, Nose and Throat Diseases of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 20, 1916.

I have seen many instances of botched work, of which the following will serve as illustrations.

Case 1.—A young woman suffering from sore throat but otherwise healthy, consulted a practitioner who, while not considered a specialist, "did nose and throat work." He advised a double tonsillectomy. The patient underwent an operation and paid the customary fee, but, instead of improving, her condition grew worse and she was obliged to drop her work. When she came to me she was out of money and out of health. She had well-marked endocarditis and there was albuminuria with tube casts. I believe these things were due to metastasis of toxins from the tonsils, both of which were still in place. Part of their cortex had been cut off but cellular proliferation had ensued and the glands were swollen, turgid and infested with bacteria. It was necessary to give the patient rest in bed and to treat her heart until its improved condition rendered an operation safe. Then both tonsils were enucleated and the empty fossae sterilized. This procedure led to a restoration of normal conditions in the throat and subsequently to cessation of the cardiac and renal symptoms.

Cases 2 and 3 were fellow patients in a hospital and both were told after operation that their tonsils had been taken out; but this was not the fact. The operator had clipped off segments protruding beyond the faucial pillars and also, in each case, some parts of the soft palate. These patients continued to suffer with their former troubles and had in addition the disagreeable muffling of the voice incident to trauma of the velum palati. A real tonsillectomy, ablating the four glands, put an end to the inflammatory disorders; but it was not possible entirely to repair the injured palate.

Cases 4 and 5 were brought in by the advice of the patients above described. They also had undergone in the same hospital an operation misnamed tonsillectomy. One showed results similar to those observed in Cases 2 and 3; but the other had, in addition, a very serious injury inflicted on the soft palate. The traumatism caused inflammation of the eustachian tube which led to severe purulent otitis media and in consequence the hearing on that side was nearly destroyed.

These five instances exemplify a kind of bungling work which is not rare and which casts reproach on our specialty. Of course, it is most unfair to blame good operators for the faults of blundering incompetents. The circulation of counterfeit money does not detract from the value of genuine coins issued from the mint. Nevertheless, mal-surgery like that cited, harms us, and we should try to prevent it for our own sake as well as for that of the misused patients who are the chief sufferers. When we seek the reasons for these delinquencies it becomes very plain that they cannot be justified or excused on the ground of necessity due to sudden emergency.

When a doctor beyond reach of assistance sees that a prompt operation offers the only chance of saving life, it is not only justifiable but most praiseworthy for him to operate, although his experience has not been large and he has a poor assortment of instruments and poor facilities for asepsis. The operation is a forlorn hope, and, if it saves the patient's life, any technical defects subsequently observed are no cause for adverse criticism. Tonsillectomy however does not come in such a category. It is not an emergency procedure to save an imperiled life, and should be done with the best help, personal and instrumental. There is time to provide suitable instruments; there also is time to engage one of the expert tonsillar surgeons who are now sufficiently numerous to supply the demand for their services. Lack in any of these particulars is due to neglect, not to necessity.

Casting aside the specious pretext of urgency, what are the real causes for this discreditable work? The illustrations given represent two types under one or other of which most instances may be classified. In Case 1, the operator was a man of mature years, egotistic and self-confident, but ignorant. He did not know even the meaning of the word tonsillectomy, for the patient was told this was the operation performed. I do not believe he meant to deceive her; but that he really thought his hacking and clipping constituted tonsillectomy. He belonged to a class of men who view their own acts and opinions through a magnifying lens; their rule is not "I do this because it is right," but "This is right because I do it." I have little doubt this bungler believed he had done the operation needed and had fairly earned his fee. As to the untoward results he classed them among the misfortunes which every practitioner sometimes encounters. In Cases 2, 3, 4 and 5, the operations (shameful to tell) were done in a public hospital by interns, none of whom had as yet even a single year's postgraduate training and experience. Of course, they were not competent for the task; of course, they made a botch of it. As these were free patients, no pecuniary inducement was involved. The young men appear to have been actuated solely by conceit, the desire to appear smart and up to date. Whatever their motive, their conduct showed a temerity, a lack of prudence and of conscience, which are ill auguries for their professional future. Their recklessness was reprehensible, but no worse than the indifference and lack of discipline. which allowed such things, and for these wrongs the hospital management was responsible.

Turning now to possible remedies, I think we can agree in the opinion that the prevention of blunders of the two types above described will go far in reducing these abuses to a minimum. The visiting staff should take the first step by informing the hospital board that such evils exist and should be corrected. If this does not bring abatement, the commissioners of public charities should admonish the managers to improve their discipline and to prohibit tyros from encroaching on the province which belongs altogether to expert and experienced operators. If the managers neglect to heed this admonition, their neglect should be sharply censured in the commissioners' report which goes to the legislature with the list of applications for state appropriations. Each appropriation bill must pass a triple scrutiny; that of the House of Representatives, the Senate and the Governor, and, though political, social and personal influences may play parts in winning approval, yet any neglect which injures the patients is sure to arouse opposition to the hospital, where it occurs, and at some one of the three stages of a bill's passage it will encounter this opposition and the appropriation solicited is likely to be notably reduced or entirely withheld. The withdrawal of state aid is a most efficient remedy for abuses. It is heroic treatment; the maximum dose of administrative reform injected into the hospital's arterial circulation, and one injection is enough. Discipline regarding operations by interns will become strict and rigid and will remain so, not only in the institution criticized, but in others similarly culpable. It thus appears that, so far as concerns the resident staff of hospitals, these abuses may be corrected by intelligent cooperation between the visiting specialists and the officials responsible for the proper conduct of our public institutions.

The type illustrated by Case 1 presents a different aspect and is less easily dealt with. Here the blame rested on a man of mature years engaged in private practice and not amenable to the restraints affecting hospital interns. He erred on account of ignorance, egotism and over-confidence. Alas! there is no way by which these things can be abolished. Can anything be done to improve the present conditions? The suggestion that tonsillar operations should be restricted by law seems unwise. Any law for such a purpose would necessarily be inquisitorial and repressive, a nearly paternal regulation of our practice. When similar regulation has been tried, it has been found that in striving to check incapable men it also harasses those who are competent, interferes between them and their patients and causes bitter dissention in the profession. For the betterment of medical practice legislation is a remedy of uncertain effect and sometimes very disappointing. We have a better hope in the education of public opinion; the results may not be swift, but they are safe, sure and abiding. If we can cultivate in the profession and among the laity correct opinions on four points we shall reduce the present abuses to very insignificant proportions, and perhaps in some localities abolish them altogether.

The first point is to recognize that tonsillectomy is not a trivial operation, which an apprentice may safely undertake, but a procedure requiring an expert's qualifications and by no means devoid of danger.

Second, there are in all medical centers at the present time specialists competent to do this operation safely and satisfactorily.

Third, the charge made by specialists is not, as many suppose, exorbitant, but moderate; and where patients are indigent, they can secure without cost the most skillful and considerate treatment.

Fourth, if a practitioner is fond of pharyngeal work and has opportunity to engage in it, he does not face the alternative of sending his patients to others or treating them himself in an unskillful manner. He can avoid both these courses, for he can be instructed in our specialty either at one of the postgraduate schools, or in the office of some colleague devoted to throat practice, and can thus fit himself to do full justice to his patients suffering from tonsillar disease.

If the Medical Society of the State of Pennsylvania will adopt a resolution endorsing the ideas expressed above, it will inaugurate the movement to educate public opinion and set an example, the influence of which will be far-reaching and beneficent.

DISCUSSION

Dr. James A. Babbitt, Philadelphia: This is a simple operation; in a way, probably the simplest that we do. For that reason, there are many disasters occurring in connection with throat and nose practice. If there is but one right way in which to treat such cases, it is a pity that some with superior intelligence cannot be regulated in such a way that experimental work by a great array of general practitioners would be omitted. It is experimental work. I have rather a strong feeling on the subject, having been associated with a thousand tonsil operations in children, in connection with the Children's Hospital. Probably one-fifth of these had previously had a portion of the tonsil removed. The structure has muscle, and may be bruised, so that the least trauma possible is the important thing to be considered. I am inclined to go back with the Allis dissector, and avoid any drawing, pulling or tearing, or leaving a poorly suspended arch. The suggestion of a reconstruction of our education in regard to doing these simple little affairs is more important, because we are not likely to make so many mistakes in the serious ones.

TRACHOMA — A DIAGNOSTIC POINT AND A METHOD OF TREATMENT *

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Although the diagnosis of trachoma in the early stages is of greatest importance, little that is new can be found in the voluminous literature of recent years to aid one. The subjective symptoms in the early stages are of minor importance to those in whom the disease is commonly found, so that very few cases come to the ophthalmologist until the disease has progressed to cause some loss of vision and greater discomfort.

The laboratory has given us little aid in the diagnosis of trachoma. The so-called "trachoma bodies" of Halberstaedter and Prowazek have been demonstrated in the normal conjunctiva of infants and in cases of benign conjunctivitis by Hanford McKee and others. The status of these bodies is, to say the least, questionable, and they are of little practical value in the diagnosis of this disease.

About two years ago the fear of an epidemic of this dread disease caused one of the large steel corporations in the Pittsburgh district to have all their employees' eyes examined, and quite a few cases were discovered among the 12,000 men. In the early stages it was found to be impossible to make a differential diagnosis between trachoma and a more benign form of follicular conjunctivitis, which was more or less prevalent at the time. The lesions in the conjunctiva of trachoma and follicular conjunctivitis are often so nearly identical that in many cases the diagnosis can only be verified by the test of time and treatment.

This difficulty in diagnosing early trachoma from lesions in the conjunctiva, which seemed typical in every way, led Dr. Edward Stieren and the writer to make a most minute examination of the cornea in every case. It was found that the first sign of corneal involvement consisted of a few very fine blood vessels extending from the limbus 1 or 2 mm. from above, with a very faint, almost imperceptible haze over and extending slightly beyond these vessels. These early corneal changes cannot be detected without the aid of strong magnification; the eyes possessing them, if left untreated, soon show marked progress in the corneal involvement until a pannus is well defined.

In other cases showing identical conjunctival lesions this corneal involvement was not seen. On another occasion, sisters who had been exposed to true trachoma in an orphans' home presented themselves for treatment at the South Side Hospital Eye Clinic. In both the conjunctiva showed what might be described as typical trachomatous granules, but the corneas were uninvolved in spite of the fact that the condition was known to have existed in them for at least two years, and the conjunctival lesions eventually yielded to simple remedies.

D. W. White, in a recent paper, mentions a new diagnostic point, improvement in vision after dilating the pupil, and thus increasing the field of vision over the faint central corneal nebulae. This corneal change, as described by him, is a later involvement, and is found just before the formation of the typical pannus.

Although in cases of trachoma the date of onset is hard to determine as the history is rather vague, we believe that these corneal changes as described are present in every case within two months from the time of infection.

TREATMENT

No attempt will be made to review the numerous methods of treatment. Practically all depend on friction to break down the trachomatous follicles or on strongly astringent drugs. The ideal treatment is one which would destroy the trachomatous follicles and leave unharmed the normal conjunctiva. The excision of the palpebral conjunctiva seems too severe a measure for general use. The grattage operation, although it cures trachoma, leaves as after-results shrunken distorted lids, which are probably less to be desired than the disease itself. With the treatment to be described, the writer has had unbounded success, both in the immediate effect and in the after-results, and in both early and late stages of the disease.

The eyes are thoroughly anesthetized with a 1 per cent. solution of holocain. The applicators are made by splitting lengthwise in half the

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* Read before the Section on Eye, Ear, Nose and Throat Diseases of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 20, 1916.

ordinary wooden tongue depressor, which is then wrapped with sterile gauze very firmly and soaked in 1:500 bichlorid of mercury solution. With such an applicator it will be found that all parts of the palpebral conjunctiva can be rubbed or scoured with ease. In the first few treatments rather free bleeding results; the patient complains but little of pain. After the rubbing, which must be thorough and include all the conjunctiva to the retrotarsal folds, the eyes are flushed with 1:500 bichlorid of mercury solution and cold compresses applied for ten minutes. The rubbing is repeated every few days at first and at longer intervals as seems necessary by the progress of the case. Atropin is instilled into the eyes at the beginning of the treatment and dionin also if the corneal involvement is marked.

Under this treatment the blood vessels in the cornea rapidly disappear and the cornea soon clears up even in the advanced cases. The treatment is continued usually for from one to two months, and all cases kept under observation if possible for a year.

Although the use of mercuric chlorid in a 1:500 solution seems to threaten an already damaged cornea, no ill results from its use have ever been seen, even though corneal ulcers exist.

The writer has used this treatment in some seventy cases so far with the most gratifying results and claims no originality for it, it being the method pursued in Dr. Stieren's clinic for a number of years.

DISCUSSION

Dr. Friend A. Cross, Scranton: A year or two ago I found Dr. Lester of New York City using this same treatment. I have tried it a number of times and feel that I am getting better results from the bichlorid rubbing than from anything else that I have tried. I want to commend the treatment.

Dr. Clarence M. Harris, Johnstown: I have never had any pronounced deformity from grattage. There is sometimes an attempt at symblepharon, or something of that kind, but in my experience this has not been serious. If the atrophy of the follicular parts takes place, as it should, and the eye quiets down, I see no great harm in such defects. The results are usually good, but sometimes the eye flares up immediately after the operation. Usually, however, this subsides and gives place to the atrophy of the glandular parts, that is so much desired. Sometimes my cases relapse in the first two or three years, but this condition gives way to treatment. The relapses seem to come from minute islands of glandular tissue.

Dr. VanKirk, closing: After the grattage operation the distorted lids quite often demand some type of secondary operation. But the treatment as described leaves very little cicatricial tissue and in no case has any malformation of the lids been noted.

WHAT IS THE DIAGNOSIS?*

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Instead of writing a stereotyped paper regarding something you know more about than I do, or that you can find in the latest textbook, I thought I would like to ask this learned body to help me out by giving me the diagnosis in the following case:

Mrs. J. F., white, married, aged 60 years, consulted me first, Nov. 18, 1913, with following history: First noticed an itching in left eye, six months before consultation, and dimness in vision of that eye two or three months before, and at times double vision. No history of injury; nine children, youngest 22 years of age, all well and healthy; two or three miscarriages; no rheumatic or specific history.

Examination.—Right eye vision with correction was 20/20, left eye vision 5/200 with no improvement with lenses. Ophthalmoscope revealed very little paralysis of external rectus muscle; slight swelling of nerve head, arteries small, but not pronounced. I gave correction and told patient to return in a week, but she did not return until April 13, 1914, five months later. At this time I found total paralysis of all muscles of left eye except the superior oblique, complete ptosis, vision barely light perception, very slight bulging of eyeball, fundus showing atrophy on inner side, disk obscured, slight swelling of the head of the nerve, upper half bulging but opening in physiological cup, inner side of sheath obliterated, veins bulging and loss of luminosity.

Roentgen ray, to see if there might be tumor in orbit, revealed no evidence of sarcoma. Wassermann was negative; in fact, all tests were negative. Patient's general health was good, with no signs of paralysis or degeneration of any other nerves. I consulted Dr. Fox at this time and his findings were practically the same as mine. March 26, 1915, I enucleated the eye on account of pain and disagreeableness caused by a physician having made an exploratory incision through the external rectus to see if there was not a tumor back of eyeball, and having left several stitches which caused a great deal of pain and suppuration. I found nothing in the orbit and nothing about eye abnormal. There has been no pain, or discomfort since operation. Patient is in good health and, except for loss of eye and ptosis, is perfectly normal.

We have a great many cases of ophthalmoplegia alone and of amblyopia, but this is the first case I have seen of both in one eye, and no disturbance in the other, or in fact no other symptoms of any kind.

The primary causes of ophthalmoplegia are syphilis and brain tumors, and cases have been reported caused by diphtheria, influenza, tabes, progressive paralysis, Basedow's disease, traumatism; also poisoning by alcohol, lead, carbon monoxid, nicotin, etc. In fact, we can find plenty of causes for ophthalmoplegia or amblyopia, but not one where it singles out one eye and does not show manifestation of the disease in the other, or also some other symptoms. Now, if the lesion is cortical, or the center of the higher rank, we always have conjugate paralysis and hemianopsia, so we can exclude this center.

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Lesion of the nuclear center on the floor of the fourth ventricle produces for the most part paralysis of several muscles. It is chronic, rarely acute in its onset, the paralysis attacking one muscle and gradually extending to the rest, and may be unilateral or bilateral. In most cases the interior muscles of the eye remain exempt from paralysis, but in a lesion of the nerve we have ophthalmoplegia totalis, which is the case in my patient, so the lesion may be in the trunk of the nerve any where from the nuclear center to the orbital fissure. Now, lesion at the base of the brain may give ophthalmoplegia and amblyopia totalis, but you always have headache, which my patient did not have. It simmers down to this, that the point of lesion must be between the optic tract and the eyeball if the same lesion is to cause both conditions.

It was not in the orbit for, in enucleating, the orbit was perfectly normal. In disease of the lenticular ganglia we can have paralysis of the muscles but not amblyopia. There are numerous cases of brain tumor producing both, but not in one eye with no other symptoms. Now, I have brought it down to the only possible point of location of where the lesion can be to cause the condition of my patient, and that is somewhere between the optic chiasm and the orbit, and I would like to know what could or would cause the patient's condition, without causing any other symptoms, or, in other words, what is the diagnosis?

DISCUSSION

Dr. George W. Mackenzie, Philadelphia: I should like to ask whether a nasal examination was made in this case. There is no mention of the sinuses having been examined. I should like to emphasize the fact that sinus disease might have produced this list of symptoms.

Dr. Emmert, closing: The nose was thoroughly examined, and the sinuses, and there was no pathological condition there that we could find. In fact, there have been no symptoms of any kind since the enucleation, and if such a condition had existed and we had not found it, there would certainly have been some symptoms of sinus trouble later. The operation has been done for nearly two years, and there has been no indication of any trouble of any kind. The patient has been perfectly normal.

DIABETIC GANGRENE *

JOHN H. JOPSON, M.D.
AND
EDWARD H. GOODMAN, M.D.
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The treatment of diabetes has been placed on a more certain basis since the researches of Allen than at any previous time. Before the treatment of human diabetes was given serious attention by Allen his work had been purely experimental, and on this sure foundation was erected the system of treatment which fittingly bears his name, and which has more or less revolutionized certain conceptions of this disease. Briefly stated, partial pancreatectomy with preservation of the pancreatic duct so as to avoid atrophy of the remnant gives a more satisfactory reproduction of clinical diabetes than is afforded by von Mering and Minkowski's total pancreatectomy, or Sandmeyer's method of slow pancreatic atrophy. Simple lowering of the sugar tolerance without diabetes, or diabetes varying in intensity from the mildest to the very severe, can thus be produced at will. As previously pointed out, animals thus prepared constitute valuable test objects, and afford favorable opportunities for research concerning diabetic therapy. In the milder types the measures ordinarily used in human diabetes, namely, restriction of carbohydrate and protein and brief fasting, if necessary, suffice to keep the animals sugar-free and in good condition indefinitely. But in more severe types, these measures do not suffice, and the animal quickly passes into a hopeless condition if more radical treatment is delayed. In this type the fast must sometimes be measured in weeks rather than in days, and the subsequent diet must be such as to keep the animal at a low level of weight and metabolism. Certain influences which increase either weight or metabolism tend to bring back glycosuria in these animals as in human patients. If glycosuria persists, the result is a downward sequence of lowered tolerance, emaciation, weakness, cachexia, and death with parallel degenerative changes in the islands of Langerhans. If glycosuria is prevented, the animal may remain lively and strong though thin; it may improve somewhat with time, and the islands seem to be repaired. This evidence supports the hypothesis that one set of influences overtaxes and injures the internal function of the pancreas, and the opposite set of influences pro-

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* Read at the General Meeting of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 21, 1916.

tects and rests the internal function of the pancreas.

While fasting is by no means a new idea, prolonged fasting as suggested by Allen is new. At times the diabetic in the severest case is made sugar-free by one initial fast, at other times the necessary duration may be eight or ten days. Severe acidosis, which is diminished by short fasting, Allen finds to be still more reduced when the fast is prolonged. Even dangerously weak and emaciated individuals stand the fast admirably, and the impression gained is that they have been suffering rather from an intoxication than from inanition. Broadly speaking, freedom from glycosuria seems attainable in all cases of uncomplicated human diabetes before there is danger of death from starvation. Allen speaks of a few cases where death had supervened from some severe complication before the urine had become sugar-free, but even in these cases fasting was not harmful. He describes one case of incipient gangrene and one dangerous carbuncle which cleared up rapidly under fasting, and asserts that there is no contraindication to fasting unless it be nausea, vomiting and prostration.

Joslin enthusiastically exclaims, "Thanks to Dr. Frederick W. Allen, we no longer nurse diabetics, we treat them," and insists that the more closely Allen's directions are followed the better will be the patient. The patient should be fasted until sugar free. He may drink freely of water, and have tea and coffee, and if sugar persists after two days' fasting, 300 c.c. of clear meat broth may be given in the 24 hours. If there is acidosis (diacetic acid), the patient in addition to the above should receive 0.5 c.c alcohol per kilogram body weight until acidosis disappears although this is not insisted upon by Allen in his recent writings. Alcohol when given is best administered in small portions, well diluted, every three hours (10 to 20 c.c.). Where the 24-hour urine is sugar free and the acidosis diminishes (blood sugar also diminishes under fasting), the tolerance is tested by adding 150 grams of 5 per cent. vegetables, and one continues to add 5 grams carbohydrates daily up to 20 grams, and then 5 grams every other day, passing successively upward through the 5, 10 and 15 per cent. vegetables, 5 and 10 per cent. fruits, potatoes and oatmeal to bread, unless sugar reappears or the tolerance reaches three grams per kilogram body weight. Should sugar reappear, a fast day is interposed, with from 50 to 200 c.c. whisky. Even in severe cases ketonuria may be made to disappear by this method. When the patient is taking from 100 to 150 grams carbohydrates (mostly as green vegetables), with no trace of glycosuria, protein is added, 20 grams (three eggs), and thereafter 15 grams protein daily in the form of meat, until the patient receives 1 gram protein per kilogram body weight.

Fat should not be further added (there is some in meat and in eggs) until the protein reaches 1 gram per kilogram, and then 25 grams daily until the patient ceases to lose weight or receives not over 40 calories per kilogram body weight. The quantity of fat (150 to 160 grams) is readily provided in the form of 120 c.c. of 40 per cent. cream (48 grams fat), 15 grams olive oil (15 grams fat) and three eggs (15 grams), 30 grams cooked bacon (15 grams fat), 100 grams cooked meat (5 grams fat) and 60 grams butter (50 grams fat).

During all this time daily examination is made of the 24-hour specimen of urine, and on the reappearance of sugar, fasting and whisky are resumed. Should the patient remain sugar-free, it is well to have one day out of seven a day of metabolic rest, no matter how mild the case.

We have stated in the beginning of the paper that Allen's work has revolutionized certain conceptions of diabetes. The new ideas in his method of treatment are, first, that increase of weight or metabolism imposes a strain on the internal pancreatic function, and decrease of weight and metabolism reduces the strain; second, the belief that calories lost in the urine should be replaced by additional calories, preferably in the form of fat, is wrong, for Allen finds that the addition of fat to a fixed diet suffices to bring back both glycosuria and ketonuria in most severe cases of diabetes.

In this brief outline we have attempted to describe the rationale of Allen's treatment, a method of treatment which in uncomplicated cases has given results unparalleled by any therapeutic procedure hitherto suggested. Emphasis is laid advisedly on "uncomplicated" for the treatment of a serious case of diabetes, namely gangrene, is the subject which we bring before you for discussion.

Judging from the extremely favorable results achieved by those who have treated diabetes by the Allen method, perhaps it is not too much to hope for, when we say that, with careful consideration given to every case of uncomplicated diabetes, diabetic gangrene may possibly be prevented. This is a point which may be debated, although the Allen treatment has been used for such a short time that proof for or against this hope has not yet been offered. The chances are, however, that if we can render a diabetic aglycosuric, and keep his urine sugar-free, we diminish materially the great danger of serious infection on the basis of a tissue made less resistant by too high a sugar content. This fact can scarcely be denied, and granting this, we repeat, that with the Allen treatment successfully carried out, diabetic gangrene may be prevented.

Diabetic gangrene to our mind is but a manifestation of an infection on the basis of lowered tissue resistance, plus arteriosclerosis in the majority of cases. The lowered resistance is specific in nature, that is, the underlying cause is a too great degree of sugar concentration. The infection on the other hand is not uniform in nature; in other words, although a microorganism is the cause in every instance, there is no specific organism of diabetic gangrene. A secondary contributary cause in many cases is an arteriosclerotic process, but that the primary factor is the hyperglycemia is demonstrated by the fact that in early cases of gangrene reduction of the percentage of blood sugar is followed frequently by amelioration of the local symptoms, even arrest of the process and finally cure.

If these premises be granted, then the rational treatment of diabetic gangrene should be dietetic and local. The Allen treatment is the treatment of choice as far as the dietetic side is concerned but the local treatment permits of wide differences of opinion. This will be described later under the surgical treatment of diabetic gangrene. Should the condition progress despite strict observance of Allen's method and rigid application of local measures, then more strenuous treatment must be considered. Indications for operation, i. e. amputation, may be divided into three groups: (1) Extension of the local process with signs of septicemia, with high amount of glycosuria which has failed to respond to dietetic measures; (2) extension of the local process with signs of septicemia even when the glycosuria is low or when the urine is sugar-free; (3) extension of the local process with signs of septicemia in the presence of acidosis (ketonuria, decrease of CO_2 in the alveolar air).

We feel that a high percentage of glycosuria in no way contraindicates operation, although we should recommend thorough trial of dietetic measures in order to reduce the urinary sugar as low as possible. When the local and general condition becomes grave, operation should not be deferred, for although one encounters the risk of poor healing or the danger of subsequent amputation when the sugar content is high, a graver menace confronts one in the form of fatal sepsis if the operation is not performed. We are face to face with two perilous evils, and we feel that amputation is the lesser of the two and is the one which promises cure if such is to be had.

When operation has been determined on, an important point to decide in these cases has been to choose between pre-operative starvation following Allen's idea or a diet rich in calories and in carbohydrates. It has been presumed that the Allen treatment has been followed in these advanced cases but with little result, and it is an important question whether it shall be continued up to the time of operation, or whether we shall, preceding surgical interference, give liberally of food to the patient. In our series of cases we have tried each and we have the conviction that "stuffing" as opposed to "fasting" in these advanced cases must be given the preference. Certain it is that better results have, in our patients, attended liberal feeding preceding operation, particularly in those cases where assiduous attention has been paid to rendering the patients sugar free. By referring to our series of cases incorporated in this article the proof of this statement may be found. Our experience in this respect both before and after operation in gangrene, no less than in other operative procedures necessary in diabetics, bears out the wisdom of the older plan of treatment, viz. feeding a generous diet, either fat and protein, or in the presence of acetone and diacetic acid carbohydrate in addition, not only before operation but also after operation. This diet is continued under certain restrictions until the patient's condition, as far as surgical indications are concerned, approximates complete convalescence.

The surgical treatment of diabetic gangrene is so inseparably connected with the general and dietetic treatment of the associated and causative constitutional disease from which the patient suffers, that it cannot be discussed from a surgical standpoint alone. In no other affection is cooperation between surgeon and internist more necessary or more intimate. Whether one views it from the standpoint of an infection alone, or sees in it a necrosis due to a combination of causes including decreased local resistance plus impaired nutrition, impeded circulation and the presence of a first-rate germ culture medium, in any case the constitutional disorder plays such an important and controlling part in the question of prognosis and treatment that it must receive constant and careful study at every stage of the case. Moreover the subject is rendered thereby an exceedingly complex and difficult one, and one which requires an armamentarium of laboratory methods, if one would render to his patient all the advantages with which we are now being provided by ardent investigators in this line.

Our views as to the nature and amenability to treatment of diabetes and its complicating factors are changing rapidly, and it is impossible to dogmatize as to methods of treatment regarding which there are still marked differences of opinion. One result of study stands out in relief, and this is that one is no longer warranted in the rather hopeless view with which many older clinicians viewed the subject of diabetes complicated by gangrene. Not only are we learning to differentiate between those types which are readily amenable to treatment, but also to see that even in the more severe and fulminating forms the previous high mortality may be reduced by the combination of dietetic and medicinal measures with operative procedures, and that the latter may be practiced in a more conservative and less mutilating fashion than formerly.

It has been emphasized that by the dietetic and fasting treatment many cases of diabetic gangrene, when seen early, are halted and that spontaneous cure results. In such cases the gangrene remains or becomes of the dry type, and the localized sphacelus is thrown off after a line of demarcation forms, leaving a granulating surface which sooner or later cicatrizes, the local process showing a degree of healing power closely related to the patient's general condition. This happy result may be aided by local therapeutic measures, including the maintenance of asepsis,the use of moist salt solution dressings, hot saline baths to the part, or dry heat continuously applied to excite local hyperemia, and the adoption in general of those moderate and conservative measures admirably described by Stettin. If cellulitis develops in the affected part it is often accompanied by suppuration in the deeper fascial spaces and along the tendon sheaths, and it is always a symptom of alarming import as indicating a spread of infection in spite of treatment. Incisions are sometimes successful in controlling the spread of inflammation but on the other hand they often favor a spread of the gangrenous process to the wound edges.

In estimating the curability of gangrene in the early stages some surgeons, like Klemperer, lay stress on the presence or absence of acetonuria, and point out that in those cases showing imperfect combustion of fats, and consequent elimination of acetone and diacetic acid, the prognosis is exceptionally grave and the prospects of cure without amputation are remote. While this theory does not find universal acceptance, we believe that the persistence of ketonuria is a symptom of unfavorable import, and that taken in connection with the presence of nephritis and advanced arteriosclerosis, and oftentimes the history of an alcoholic habit, it constitutes an additional indication for operation. It is in these cases that the dietetic treatment will oftentimes fail to control the gangrenous process, which if spreading in spite of treatment demands amputation to remove a painful, useless and threatening member.

Another constant source of danger is found in the absorption of toxins from the infected area. Sepsis, acute or chronic, favors the development of acidosis and coma, and the presence of fever is an alarming symptom. When under such circumstances the patient becomes dull and drowsy and suffers from headache, nausea and vomiting, and shows the significant deep breathing of acidosis, the most rigorous treatment may fail in its desired action. Under such circumstances operation may be required under the most unfavorable circumstances. We would emphasize that, while in general diabetic gangrene may not be an urgent indication for amputation, and while we agree with Stettin that in the average case conservative measures should always be given a trial, there remain certain types of cases which are unfavorable from a dietetic and medicinal standpoint, and we include under the latter heading the commonly used standbys of practice such as codein, iodids and nitroglycerin, and the bicarbonate of soda. Again in the common types there arise emergencies which may call for quick action in the presence of well-defined indications such as those already mentioned, and in any case physician and surgeon must stand ready for prompt interference.

Enough has been said as to the preparation for operation once this has been seen to be necessary. The capacity of the individual to handle certain kinds of food will usually have been tested out. There is much of truth in the older conceptions that a diet which permits the storing up of a certain amount of glycogen preparatory to the shock and exhaustion of a surgical operation is of value in warding off acidosis. If the patient has been rendered sugar-free beforehand, a fairly generous diet may be built up when time affords, including a liberal amount of oatmeal, or a combination of carbohydrates and proteids. Acetonuria is an additional indication for feeding carbohydrates in these cases, and while Stillman found acidosis no contraindication to fasting in the majority of instances in treating diabetes per se, there was one small group in his reported cases in which the progressive fall of the bicarbonate content of the blood was a signal for a few days' return to a low protein fat schedule. Joslin's warning against sudden changes in diet before operation when diabetes is severe, and in elderly persons, should always be borne in mind. Similarly after operation, as already mentioned, the patient must be fed, and the glycosuria disregarded until healing is well advanced or complete. We favor the use of alkalies in large enough doses to render the urine alkaline before operation, and prefer to administer sodium bicarbonate by mouth and by protoclysis, being careful not to give enough to cause gastric disorder. Water is given freely before operation as well as afterward.

While minor amputations and operations may be performed under local anesthesia, we much prefer nitrous oxid and oxygen to any other form of anesthesia for major operations. Ether and chloroform are contraindicated in cases giving a history of glycosuria and, while spinal anesthesia and local anesthesia may be at times acceptable, the avoidance of psychic shock and the importance of utilizing every measure of "anoci-association" which is feasible, as Addis and Strouse insist, render the general anesthetic the one of first choice, and of all general anesthetics nitrous oxid is the least likely to cause acidosis. Moreover, the combination of oxygen in these cases with the anesthetic is probably of value in itself, as Lockwood pointed out the fact that these patients are often cyanosed, showing deficient oxygenation in their tissues, and in two cases he used oxygen for long periods after operation with the happiest results.

The site at which amputation should be performed has been the subject of much discussion. While some surgeons favor a conservative policy, including the awaiting of the formation of a line of demarcation, with subsequent amputation through sound tissue irrespective of the site, the majority follow the teachings of Küster, who found that, when the gangrene extended to the dorsum of the foot, amputation above the knee gave the best results. In spreading gangrene, the majority of authorities, including Klemperer, Lockwood, DaCosta, Pilcher, and others, advise the high amputation. In four of our cases we were content to amputate through the leg, which site is more in accord with the conservative method of Stettin. Three of our cases healed promptly and kindly; in the fourth the patient died of virulent gas bacillus infection present before operation in the foot, and which might have recurred in the stump even after high amputation. One of the cases recovering was a most unfavorable one, and was handled in association with Dr. Goepp who directed the dietetic treatment along the lines we recommend. Three months later this patient was wearing an artificial limb and earning his living at an active occupation. We believe the test of Moskowicz of some value in determining the site of amputation even where there is marked arteriosclerosis of the femorals.

The technic of amputation is important. The Esmarch bandage may be dispensed with. The circular method should be used where feasible, as giving the smallest wound surface with the best nutrition, and the aperiosteal method of Hirsch-Bunge should be employed. In our thigh amputations we made the mistake of using the osteoplastic method, which we would now scrupulously avoid. We prefer to close the wound by suturing, with ample provision for drainage, avoiding all tension in the wound edges. The operation should be performed as quickly as is consistent with safety, scrupulous asepsis being observed.

The postoperative treatment includes the use of morphin and codein for pain, water freely by mouth and rectum, and feeding as outlined in accordance with the exigencies of the case and the maintenance of caloric values. The urine is tested daily for the products of deficient fat combustion, and every means taken to ward off the acidosis and coma which are precipitated by mental and physical stress and trauma, as well as the other agencies mentioned.

CASE REPORTS

William L., aged 60, was admitted to the Polyclinic Hospital, July 9, 1914, and discharged Aug. 8, 1914, cured.

A few days previously he had been injured by a piece of asphalt falling on toe. Toe gradually became worse, dark in color, discoloration extending back to the first joint and later involving the second and third toes. Line of demarcation gradually formed but beyond this the parts were red, tender, and swollen, and the patient thought it was gradually extending upward.

Examination showed the great and second toes of the left foot cold, blue and insensible to touch. There was no pulsation in anterior and posterior tibial arteries. There was a sinus in the metatarsophalangeal articulation discharging pus. Line of demarcation was ½ inch lower than this. There was a general arteriosclerosis with beaded radials and temporals. Urine showed albumin, casts and sugar. The history of slight traumatism, infection, rapid development of gangrene, etc., was typical. The heart was negative and also the lungs. Blood pressure was 168 and 80. The kidneys showed chronic interstitial nephritis.

On July 15 there was a line of demarcation 1 cm. above the upper line of incision on sole, on dorsum at level of skin incision and well marked. The third toe was involved to a limited extent on the dorsum. The rest of the foot looked less red and the inflammation appeared to be subsiding. The urine showed glucose, acetone and diacetic acid. The temperature continued moderately elevated. The patient was on milk and egg diet, custard and junket; codein, ¼ grain, twice a day, sodium bicarbonate, 20 grains, every three hours. Operation on July 23, 1914, under gas anesthesia: Amputation middle third of leg, aperiosteal type. During his stay in the hospital acetone and diacetic acid and sugar were present, the last named being as high as 5.8 per cent. After operation the sugar dropped to 3 per cent. and diacetic acid and acetone disappeared. The patient received before operation liberal diet directed by Dr. Max Goepp, also after operation. Primary healing of wound. Returned to work.

Mary P., aged 68, was admitted to Presbyterian Hospital, Sept. 17, 1914, with a discharging sinus at the base of the fifth toe of the right foot. Patient had had diabetes for at least five years. Condition of the toe started as a small abrasion two years before. One month before admission it became painful, having refused to heal under local treatment, had become discolored and the suppurative process had extended to the sole of the foot. On admission the toe was gangrenous and there was a deep discharging sinus on the outer side of the foot into the sole. There was a line of demarcation and separation at the base, and a sloughing wound on the plantar surface one inch long and extending down to the bone. There was no fever, no lymphangitis in the foot; pain was complained of in the ankle; the peripheral vessels showed very little arteriosclerotic change. The anterior tibial artery pulsated vigorously. The urine contained sugar; acetone and diacetic acid were absent.

The toe was removed on September 29 under nitrous oxid anesthesia. The patient had been on a semi-liquid diet and this was now changed to B 16. On October 1 the sugar content was 0.9 per cent. The wound refused to heal; there was swelling and redness of the foot, and a large wound with a sloughing base. The patient had been vomiting but this had stopped. One week later the sugar content being at this time 2.2 per cent., amputation of the right foot was performed through the lower portion of the leg; an aperiosteal amputation with equal lateral flaps, under nitrous oxid anesthesia. She did well after the operation and the wound healed kindly. The diet was at first liquid, then semi-liquid and finally a general diet with some alcohol. On the 21st the B 16 diet was ordered again, and on the 26th she was transferred to the medical ward, and the dietetic treatment continued until on her discharge on November 21, when she was sugar-free, in good condition, gaining in weight, and the wound solidly healed. She was ordered a special diet and oversight continued at home by the social worker.

She died in February of the following year, the exact cause of death being unknown. Six weeks previously she had been seen and apparently had been doing well, although childish and complaining at this time of pain in the left leg. No further details of her last illness are obtainable, except that there was apparently no return of the gangrene.

Patrick N., aged 53, was admitted to Polyclinic Hospital Dec. 26, 1914; died Feb. 15, 1915. About five months previous to admission patient noticed a callous formation on the plantar surface of the great toe, but gave it no thought, believing it to be a corn. About six weeks ago he removed the entire callosity and found a hole in the center containing a small amount of black, dry material. There was no pain. Three weeks later the foot became sore over the dorsal surface and at the base of the great toe. Swelling and redness of the foot were also present. He used an ointment, but the toe kept growing worse and finally the patient applied at the out-patient department for treatment about two weeks before his admission to the hospital. During the last two weeks the toe had become gradually worse and an ulcer had developed on the inner surface. There was nothing of significance in his previous medical history.

Examination showed the left foot to be somewhat swollen and red over the dorsal surface; much tenderness at the base of the great toe on the plantar surface. The toe had a small ulcer on the plantar surface containing pus, and of a punched out appearance. There is a superficial ulcer involving the greater part of the inner surface, with foul odor. The toe is not cold and the foot is warmer than the opposite foot. Arteriosclerosis is present. Blood pressure is 160 and 80.

On admission the urine contained trace of glucose but no acetone bodies; on Jan. 7, 1915, two days before operation, 0.423 per cent. glucose. Sepsis increased, the local condition became worse and on January 9 the toe was amputated under local anesthesia (Dr. Speese). Sugar persisted after operation but no acetone. On February 4 the glucose had been 2.5 per cent. Owing to the extension of the infection a second operation was performed on Feb. 9, 1915, under gas anesthesia. The leg was amputated at the juncture of the upper and middle third, with good recovery from operation and anesthetic. On February 12 his condition changed markedly for the worse. Crepitation was felt over the stump and later it was found to be extending. A profuse discharge was present and the patient's general condition was poor. On February 12, the glucose was 1.6 per cent. The patient died Feb. 15, 1915. Death was due to infection with *Bacillus aerogenes capsulatus,* the organism being recovered from the wound. A history of crepitation in the tissues of the foot on the day of operation was obtained, and it was evident that the specific bacterial infection which was the cause of death had developed in the part while attempts at saving the limb were being carried out. The patient was not starved but was prepared for operation by Dr. Goepp in accordance with the plan recommended by us.

Annie S., aged 68, was admitted to the Polyclinic Hospital, May 3, 1915, discharged June 12, 1915, cured.

One month before admission the patient had discoloration of the third toe of left foot, which did not improve under treatment. On admission examination of urine showed a small amount of sugar, trace of acetone; diacetic acid was negative. The temperature ranged from 99 to 101, leukocytes 20,600. Under medical treatment of fasting, etc., directed by Dr. Goodman, and local measures, the local condition failed to improve. The temperature remained septic; operation was advised and amputation of leg, middle third, was performed. Before operation the patient was fed up on milk, eggs and whisky, and after operation no particular restriction in diet except the customary restraint for those who have had an operation. The patient made a good recovery, complicated by a slight attack of bronchopneumonia.

There has been no recurrence of the trouble since operation, a year and a half ago. The urine always contains sugar but no acetone. Patient restive under dietary, would not submit to Allen treatment. (Instance of full feeding before and after operation.)

Ann I., aged 60, was admitted to Presbyterian Hospital Nov. 29, 1915, and died Jan. 6, 1916.

For a number of years the patient had had a great deal of trouble with her toe. Recently it had become worse and the physician advised hospital treatment on account of the gangrenous appearance.

On examination the last phalanx of the great toe was found gangrenous and there was a definite line of demarcation. The radial and temporal arteries were not markedly sclerosed. There was no pulsation in the dorsalis pedis or posterior tibial arteries. The urine on admission was negative as far as sugar or acetone bodies was concerned.

On December 9 the side of the foot was found to be greatly inflamed and was covered with numerous blebs. The inflammation extended to just above the internal malleolus. The gangrenous portion was removed and on opening the blebs the tissue beneath was found to be gangrenous, the gangrene extending to deeper lying tissues. The entire foot was swollen and edematous. The Moschowitz test showed blushing to extend to just below the knee.

On December 13, sugar (1.92 per cent., 20 gm.) was found for the first time. Amputation above the knee under nitrous oxid anesthesia was performed on December 15. Operation was preceded by no particular antidiabetic dietary. On December 17, a carbohydrate-free diet, consisting of 5 per cent. vegetables was given and, apart from 0.9 per cent. sugar and a trace of acetone, the urine remained negative. On December 24 acetone reappeared and on December 30 full house diet was given with no reappearance of sugar.

On Jan. 3, 1916, the temperature began to rise, a large bleb appeared high on the inner surface of the thigh and signs of bronchopneumonia were observed. The slough on the thigh continued to spread and the patient died on Jan. 6, 1916.

Diagnosis: Senile gangrene; intercurrent diabetes; bronchopneumonia.

Thomas S., aged 52, was admitted to the Presbyterian Hospital, Dec. 6, 1915, died Dec. 28, 1915.

Chief complaint was gangrene of the great toe of the right foot following injury caused by ingrowing toenail. Inflammation began about three weeks before admission. Ten days previously patient noticed that the toe was beginning to turn black and was exceedingly painful. This discoloration increased until on admission the entire large toe was gangrenous and part of one other toe as well. The patient was a confirmed alcoholic.

Examination showed a much older man than his age would warrant. Radial arteries were not sclerosed. The large toe of the right foot was gangrenous and pus exuded from several small abrasions. The middle toe was also gangrenous and there was a line of demarcation on both toes. The remaining toes were red and swollen and the circulation was apparently very poor. The entire foot was red, swollen and tender. No pulsation in the dorsalis pedis or in the posterior tibial. The urine contained 1.62 per cent. of sugar (6.72 gm.); albumin, acetone, and hyaline and granular casts were found.

On December 9 the oatmeal diet of von Noorden was given. Local condition was much worse. On December 10 the sugar was 1.6 per cent. and on the 11th 0.8 per cent., acetone present on both days. On December 11 amputation 2 inches above the knee was performed under nitrous oxid anesthesia. On December 13 Allen's routine was followed. On December 14 urine showed 0.66 per cent. sugar; acetone and diacetic acid were also present. On December 15 sugar was 2.5 per cent., acetone and diacetic acid present. On December 16 general condition was good. Urine contained 2 per cent. sugar, acetone present, diacetic acid absent.

On December 17 there was sloughing of the flaps; general condition fair. Urine showed 1.5 per cent. sugar (31.6 gm.), acetone and diacetic acid present. On December 18 patient was placed on von Noorden's carbohydrate diet (vegetable day); on December 21, Allen's diet. Urine reports are as follows:

Dec. 22, 1.2% (12.5 gm.), sugar, acetone, no diacetic
Dec. 23, 0.8% (17.0 gm.), sugar, acetone, diacetic acid
Dec. 24, 1.5% (29.2 gm.), sugar, acetone, diacetic acid
Dec. 25, 1.5% (25.2 gm.), sugar, acetone, diacetic acid
Dec. 26, 1.5% (13.4 gm.), sugar, acetone, diacetic acid

On December 26 the pulse became very irregular and weak. On December 27 the patient's condition was worse, with stupor and rapid, irregular heart. Death occurred on Dec. 28, 1915.

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DISCUSSION

Dr. Moses Behrend, Philadelphia: I was surprised to hear the statement made in regard to the Allen treatment. I happen to have had a fair experience with diabetic gangrene. The mortality was exceedingly high before the Allen treatment was known. Since it has come into vogue it has been our principle never to operate in case of diabetes until the Allen treatment has been instituted and before operation we insist that the Allen treatment be continued; even after operation we go very slowly in bringing the patient back to his normal diet. It has been our experience that results after the Allen treatment have been far superior to any other form of treatment. There is another form of gangrene in diabetes. It is an insidious form of localized gangrene which occurs around the extensor tendons of the toes. It is a very grave symptom and the prognosis in all these cases must be very guarded indeed. Death results whether operation is performed or not. Arterial change is found in patients with this condition.

THE PRESENT-DAY TREATMENT OF TUBERCULOUS ABSCESSES AND SINUSES*

CHARLES W. DELANEY, M.D., F.A.C.S.
ALTOONA

There is a well-recognized law in tuberculosis that we must never open a cold abscess, which communicates with a tuberculous focus, unless we can go to the bottom of it and clean out the primary focus. Likewise, we must never open a tuberculous abscess unless it is an imperative necessity, which is making the sustenance of life a grave danger, as in postpharyngeal abscess, for if we do, the moment the abscess is opened we are admitting a more virulent and dangerous type of infection.

Tuberculous abscesses are always circumscribed, and for this reason they should not have the encapsulating tissue disrupted, thus causing additional implantation of pathogenic organisms into a mass of tuberculous material, which is an ideal pabulum for septic microorganisms. Septic products are absorbed through the encapsulating tissues, giving rise to the cardinal symptoms of chronic sepsis, namely, fever, sweats, chills and other signs of general invasion.

The tendency of tuberculosis in any location in the body, except in intestinal foci, is always to heal. The focus is encapsulated and heals by cicatrization. Tuberculosis of itself never kills; it is practically always the mixed infection implanted that destroys the life of the host.

However, in the face of the facts as set forth above, we who see many of this class of cases, find that the general practitioner has an irresistible desire to plunge a knife into every abscess regardless of the infective organism causing the abscess. When a tuberculous abscess is opened under such condition it immediately becomes a seething mass of infective material, which penetrates to the very depth of the process and, by chronic septic absorption, produces that condition of the body formerly attributed to tuberculosis, general or miliary, but which in truth is chronic sepsis.

It is neither wise nor necessary to open these abscesses by incision, although it is a fact that there has been teaching to this effect in the past; but, in the light of present-day care of tuberculous abscesses, it is wrong to do it, except in a few isolated instances where the infection is purely local, and even then it is a question as to its advisability. If the proper treatment is carried out in its minutest details, splendid results will follow.

The method of treating these cases, which has given the most satisfactory results in our clinic in the Altoona Hospital, may be outlined as follows: (1) make an early diagnosis; (2) begin immediate treatment; (3) persist in treatment, giving part affected a maximum of absolute rest; (4) manipulate as little as possible and not at all after diagnosis; and (5) never open tuberculous or cold abscesses, but aspirate and inject with a suitable modifying solution, under strictest aseptic technic as follows: (*a*) Syringe and aspirating set must be sterilized, preferably by boiling vaselin; (*b*) field of abscess must be painted with iodin and benzin and tincture iodin 3.5 per cent.; operator's hands, aseptic and gloved; (*c*) insert a No. 3 aspirating needle obliquely at some distance from greatest bulging in healthy tissue, taking care that the needle enters the abscess cavity and is held rigid to avoid injury to the wall of the abscess; (*d*) immediately after aspirating as much of the pus as possible, inject the modifying solution of Calot, using one-fourth to 1 ounce, according to age of patient and size of abscess.

Formula:	Olive oil	℥ iiss
	Ether	℥ i ¼
	Creosote	ʒ iss
	Guaiacol	gr. xv
	Iodoform	ʒ iiss

This solution, which we have used over two years, has given us the best results in all abscess cases, and we believe it to be the ideal. In a recent issue of Murphy Clinics, Dr. Murphy said that "the formula of Calot is the best one so far devised for treating this class of cases." It gives rise to no pain and can be used when the overlying skin is in danger of breaking.

The abscess is aspirated and injected every ten days for six sittings; during the seventh it is merely aspirated and a compress applied. The walls will cicatrize and the abscess cavity is thus obliterated. During the time of treating the abscess the patient is kept at absolute rest under the usual hygienic regimen of tuberculosis in any part of the body. When the abscess has healed, other treatments of the primary focus may be performed, such as the Albee bone graft operation in spinal caries.

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* Read before the Section on Surgery of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 21, 1916.

The treatment of tuberculous fistulas is accomplished by injecting a paste, which solidifies at the body temperature and does not require a high temperature to melt it.

Fistulas are easier to prevent than to cure. It is believed that nine out of every ten deaths in bone tuberculosis are due to formation of fistulas, 90 per cent of which it is possible to avoid. The causes of fistulas and sinuses arise from faulty methods of treatment of tuberculous abscesses either by the surgeon who operates on external tuberculosis and opens abscesses, by those who never interfere and so allow abscesses to open spontaneously, or by those who puncture improperly.

If the abscess has been opened either unwisely or by Nature and a sinus is present, the case is treated as every tuberculous case should be, by rest, fresh air, food and sunshine. The sinuses are injected with Calot's paste every seven days, using a large-sized urethral glass syringe. The paste is liquified in a water bath, and the syringe is so heated that the medicated paste does not solidify. The mixture is injected firmly, but not with too great pressure. The sinuses communicating are held closed by the pressure of an assistant's finger tips, until the paste is solidified.

Formula:	Camphorated phenol....	℥ iss
	Camphorated naphthol..	℥ iss
	Guaiacol	ʒ iiiss
	Iodoform	ʒ v
	Creosote	℥ ii
	Lanolin	
	Spermaceti ....āā	℥ xiii

The paste is liquid at 106 F. and solid at 99 F.

After each injection the opening is protected with a compress of thick gauze dressing. The relief obtained is most gratifying, both as to decrease in the discharges and relief of discomfort. Perseverance in this treatment will eventually cure the fistulas.

CONCLUSIONS

1. Evacuation of abscesses of tuberculous nature by incision does not rest on a rational foundation and should never be done.

2. Absolute noninterference cannot be accepted as the best possible course to pursue.

3. Aspiration and injection of these abscesses is at the present the preferable course to pursue, and the results will prove this conclusion, if the operation is performed according to the rigid aseptic technic as outlined.

4. The general treatment must not be overlooked in the zeal of curing the abscess. The greatest help that we can render Nature in curing tuberculosis is to enforce absolute rest.

1320 Ninth Street.

DISCUSSION

Dr. J. Norman White, Scranton: No one treatment or technic is applicable to every and all forms of tuberculous abscess. In a certain number of cases where the abscess is superficial, such as in most glandular abscesses, in the subcutaneous tuberculous nodules which occur in children and in many abscesses connected with superficial bones, such as the ribs, the abscess and the piece of diseased bone with which it is associated, may be excised completely, leaving a clean cut wound which heals by first intention. On the other hand, in abscesses of other parts of the body, as the sacroiliac joint, vertebræ and various large joints, removal of the abscess and the entire focus by operation is fraught with too much danger to be practical.

The essayist's dictum not to plunge a knife into a cold abscess is as old as it is important. Hilton in 1850 had this to say on the subject of opening an abscess: "Some surgeons would say 'open an abscess whenever it shows itself' and they accordingly advise such treatment. For my part I believe such a recommendation to be fraught with extreme danger to the patient and that it marks the indiscretion of the surgeon." Those of you who have read his classic "Rest and Pain," remember that he gives data of a large number of cases that he cured by the one remedy, "rest."

Dr. Delaney sounds the keynote to successful treatment when he advises early diagnosis and early treatment. The same arguments that apply to early diagnosis and operation in appendicitis and gallbladder disease hold good here; a patient with one diseased vertebra is easier to cure and the results more satisfactory than when he has two, three or four. It has been my experience in treating cold abscesses having their origin in bone, that it is a matter of years rather than months, as some authorities would have one suppose. The treatment is long and results cannot be given in six, eight or ten months. The aspiration and injection treatment recommended by Dr. Delaney is simple and at the same time does not interfere with other well known underlying principles in treating tuberculosis; namely, fresh air, rest, good food and good hygiene. These accessory measures should not be underestimated. The fate of the patient often depends on the strict aseptic technic of the operator; mixed infection spells disaster. One should be infinitely more careful than at any ordinary operation because we have a sensitive culture media here in the form of the tuberculous material and infection often turns a slow forming, smoldering inflammatory process into an acute and fatal conflagration.

The essayist advocates aspiration and injection every ten days for six sittings. It seems to me that no hard and fast rule can be laid down. I think a better one would be to aspirate and inject as long as there is anything to aspirate. The response to treatment is not the same in each individual, it depends on the reaction, the hygienic régime and the age of the process and many other things. A tuberculous sinus generally represents disease of bone plus the blunder of some surgeon or near surgeon. As Dr. Delaney has said, the best treatment is prevention. An abscess treated by aspiration and injection should never form a sinus. Once a sinus is formed, it adds months and years to the convalescence, causes much pain and suffering and is the most frequent cause of mortality in bone tuberculosis. Hygiene, rest, injections and sometimes operation is indicated.

Dr. J. Torrance Rugh, Philadelphia: I think the presentation of this subject is one of the most timely that could be brought before this section, especially in the interest of these patients. There are three distinct indications for interference in a tubercular abscess: First, if the abscess is pointing or ready to break or threatening to break, then it should be tapped; second, if the abscess is rapidly enlarging or causing trouble by its pressure, it should be tapped or opened; third, if the abscess is interfering with the health of the patient by producing constitutional symptoms, it should be opened or tapped. It is not necessary to tap these abscesses unless some one of these conditions is present. As Dr. Delaney mentioned, the essential part in the treatment of these cases is rest and fixation, the doing away of all possible function of the part and nature will take care of the vast majority of these abscesses. The content of these abscesses is not pus. It is simply broken down detritus. It is infectious only for tubercle bacillus. You do not find any other germs there. As I said, the system will take care of this condition.

I find where aspiration is indicated it is necessary to use quite an amount of force in extracting the contents because these abscesses vary materially in the character of the contents. Within the past two or three months I have opened a couple from which I could not withdraw the contents through a large trocar. It was simply a mass of broken down or softened connective tissue and fat which could not be drawn by an aspirator through the cannula. Such abscesses must be opened and the part cleaned out under the most careful asepsis and then the cavity should be closed. One little point which Dr. Delaney touched on is in the introduction of the needle in the aspirating process, which to me is of still more importance than the slipping of the needle through deeper tissue and that is to pull the skin aside. He showed where the needle had gone through and then by the slipping of different layers of tissue the track of the needle had been obliterated. You can obliterate them before introducing the needle by sliding the skin to one side and then introduce the needle. When you withdraw it, the skin naturally slides over the tissues and obliterates the track of the needle. One other point brought out which I do not think is quite necessary is that in Pott's disease, he gets rid of the abscesses and then puts in his bone graft. I never think of it. Whether an abscess is present or not, I put in the bone graft and in only one or two cases out of a considerable number, have I found it necessary to do anything to the abscess. When the spine is fixed by the graft, the abscess disappears and in no case has the abscess proved any complication.

Dr. Delaney, closing: As to the number of times of injection, six is sufficient and the abscess can be allowed to lapse and then if reformation occurs an aspiration can be done to complete cicatrization of the walls of the abscess. As to the handling of the thick pus, you simply inject glycerin and formaldehyd and the pus will liquefy in a few days, then you can go ahead with your other treatment.

IDIOSYNCRASIES IN ECTOPIC PREGNANCY *

W. ALBERT NASON, M.D.

ROARING SPRING

My first experience in ectopic pregnancy was about twenty-eight years ago, while in partnership with an older practitioner.

The patient was a woman about 30 years of age, whom I had previously attended in her first confinement which was normal in every way. She had been in excellent health until she began to complain of irregular menstruation. Not being able to treat her successfully we called into the case, at intervals of two or three weeks, two eminent local surgeons. They each diagnosed incomplete abortion and did curettements. The treatment was of no benefit and in my absence my partner was called one night to see her and she died while he was there.

The next morning necropsy revealed a ruptured ectopic. There was not a large amount of hemorrhage. We decided that she had died from shock, but from that time to this it has always been somewhat of a mystery as there did not seem to have been sufficient loss of blood to account for the death.

The typical cases of ectopic pregnancy with symptoms of irregular menses, more or less of the signs of a normal pregnancy, then sudden pain followed by evidence of internal hemorrhage, are easily recognized. But like other typical diseases we more often have cases which do not present such classical form.

In general practice for a number of years I either failed to recognize or else saw but few cases. But since entering the field of surgery I have found them to be more and more abundant. My experience has been, however, that these cases are relatively much more common in cities and towns than in country districts. I attribute this to the fact that gonorrhea and criminal abortion are much more common in the former. Some allowance must be made, however, for the frequent overlooking of these cases in the country. In looking up the literature I found that one distinguished author sums up about as follows: "The majority of cases will recover without operation. The loss of blood seldom kills, large amounts of blood

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are usually absorbed and cause no serious symptoms. Operation is the best treatment as the patient more rapidly recovers." My judgment, based on a fairly large experience in general work and in surgery, does not lead me entirely to endorse this.

On July 13, 1909, a patient with diagnosis of probable ectopic pregnancy of some weeks' standing was admitted to the hospital. I operated on her on the 16th and found a left ectopic pregnancy with pus tube on the right. They were both removed. Patient was decidedly septic with a large amount of free blood. She was in the hospital for several weeks in a very serious condition, suffering from a more or less pyemic condition, but finally made a complete recovery. Perhaps the trouble was aggravated by the operation but we who saw her believe that the septic condition present would have caused her death without operation. Some months later another case came to us with a somewhat similar condition but which was diagnosed as a case of pus tubes or general pelvic cellulitis. On operation our diagnosis was verified with the addition of finding a dead fetus of about two months' development. This patient made no improvement following operation and died a few days later.

As it is generally believed that the most common predisposing cause of ectopic pregnancy is diseased appendages from a previous gonorrhea or following an infection from postpartum sepsis, we can expect the patient to have a good field for further trouble. If then there is a large amount of hemorrhage left in the abdomen a serious septic trouble in these cases will follow, with probable death if no operation is done. If we could be sure which cases are clean and not operate, probably we could expect the patients to recover; and no doubt a great many such have recovered.

On Feb. 4, 1913, Mrs. B. came to us with the following history, as near as we could get it: She had been married three months and the attending physician said she was pregnant three months. A high temperature for several days and great pain led him to believe she had appendicitis. On examination I concluded that the patient was probably five months' pregnant. The abdomen was considerably distended and I was uncertain of the diagnosis but decided that operation was proper. On opening the abdomen we found an abdominal ectopic. There was no rupture and no hemorrhage but some pus with a dead fetus of four or five months; pus outside of sac. The operation was not successful as she died in two weeks from peritonitis. There was a previous gonorrhea, probably, though we could not positively verify it.

I have found the most common error made by the general practitioner in this condition is in confounding it with appendicitis, and as I have sometimes fallen into that error I am very slow in condemning others for such mistake. Often the correct history of a case in general practice is hard to get and as a rule I think these patients do not usually call the family physician until there is rupture.

A patient in the country may or may not consult the family physician about irregularities in menses, but when seized by the sudden, to her dangerous, symptoms of rupture she will then call him. Pain is the principal complaint and often the patient overlooks to report that there has been a preëxisting condition which may have some bearing on the cramp then present.

Miss B. came to us with the history of having been thrown from a buggy and somewhat jarred but apparently not much hurt. This occurred in the evening. The next night she was seized with severe cramp and called her doctor who, with large doses of morphin, relieved her. The following day the patient, being not much better, was brought to the hospital where we made the diagnosis of appendicitis, the pain and tenderness being entirely on the right side and at McBurney's point. On operation we found, much to our surprise, a large amount of blood with a ruptured ectopic.

Where there is a coincident ectopic with a natural pregnancy, we find it difficult always to solve the problem.

On Oct. 6, 1915, Mrs. W. was operated on for a ruptured ectopic pregnancy. The records show that I removed a right ectopic, the appendix and did a Gilliam suspension. She made the usual recovery. I was considerably surprised when informed that eight months afterward she was deliverèd of a full-term healthy child.

Ectopic on one side after being operated for it on the other is not unusual, of course, but the following case was interesting to me. Shall we call it "puerperal eclampsia?"

Mrs. H., a minister's wife, was operated on for ectopic pregnancy, Jan. 20, 1911, in Harrisburg, and the right ruptured tube was removed with blood clots and a three months' fetus. She had a healthy child born July 5, 1914. From this time on she was apparently well until she began again to suspect herself pregnant. Her physician diagnosed it ruptured ectopic pregnancy and we operated Dec. 23, 1915. Before operation her blood pressure was 140 and the urine normal. The diagnosis was verified. Immediately after operation the blood pressure was 162 and five hours after it was 210. The next morning the urine showed a trace of albumin and the blood pressure continued over 200 and up to 220. On December 24, or twenty-four hours after, she was seized with convulsions. These gradually subsided. Blood pressure came down to normal at the end of two weeks, the urine cleared up and the patient made a good recovery.

The cases with death recorded above are the only deaths I have had. All cases which were diagnosed as ruptured with consequent hemorrhage and seen by me have been operated on at once and none of the patients have died. I have seen no cases which had a fatal hemorrhage. A large majority have been operated on days or weeks after the first hemorrhage.

From my own experience I conclude that practically all patients operated on immediately following rupture will recover. Many will become infected without operation. Very few regain perfect health without operation and those that do, have a very slow recovery.

Diagnosis is often difficult. If mistaken for appendicitis no harm is done, for in either case operation is the proper treatment.

DISCUSSION

Dr. C. B. Noecker, Scranton: It is well to suspect ectopic pregnancy in all cases of incomplete abortion where the pallor and collapse are out of all proportion to the amount of blood lost. I, too, like Dr. Nason have operated on cases diagnosed as appendicitis only to find a ruptured ectopic. Another condition often confused with ectopic pregnancy is salpingitis of gonorrheal origin. If one inquires into the history of these cases it is common to find that the patient has had previous attacks of tubal inflammation followed by some period of sterility. Dr. Taylor of New York, in a series of forty-six cases, reports 25 per cent. as having had a period of sterility for five years, and 76 per cent. gave a history of previous tubal inflammation. Combined extrauterine and intrauterine pregnancy are relatively common. Parry, in his series of 500 cases, records twenty-two cases of ectopic associated with intrauterine pregnancy. Strauss records a series of thirty-two cases and still later Weibel records a series of 119 cases. My own experience in this class has been limited to a single case in which a ruptured right tube and ovary were removed and in about seven months afterward the patient gave birth to a full-term baby.

I have found in the literature that in the majority of cases abortion takes place either at the time of rupture of the ectopic or following the operation. Bilateral cases of pregnancy are not so common. They should not be confused with the so-called successive cases of ectopic pregnancy where we have a later and second pregnancy of the other tube. To have a proper bilateral pregnancy one must have a fetus for each tube, or, in the absence of that, one must be able to demonstrate the presence of chorionic villi in both sacs. The blood pressure should be taken in all cases of ectopic pregnancy following the onset of symptoms as this is a good indicator as to the extent of hemorrhage that is taking place. The majority of cases of early deaths reported have been due to hemorrhage.

Dr. Edward E. Montgomery, Philadelphia: I was greatly interested in the paper on ectopic gestation as seen by a physician in a country district. While it is true that ectopic gestation is most frequently the result of inflammatory conditions of the tube, and the most frequent cause is gonorrhea, yet there are many cases of tubal gestation in which there is no reason to suspect gonorrhea. It may take place with fibroid growths in the cornu of the uterus lessening the probability of the ovum escaping. I have seen this occur. With regard to the diagnosis of ectopic gestation, it should always be suspected where a patient has passed over one or two menstrual periods with symptoms of threatened abortion, and has more or less pain with a continuous bloody discharge taking place from the vagina for a number of days or weeks following. In all such cases, I say, the possibility of ectopic gestation should be suspected. It should also be suspected where the patient has a severe attack of pain, possibly a fainting attack with all the indications of concealed hemorrhage. Even with these symptoms eliminated we find that patients sometimes suffer from ectopic gestation who have not had cessation of menstruation and before the next menstrual period a rupture takes place and hemorrhage occurs into the abdominal cavity, giving rise even to serious danger without any cessation of menstruation. If the pain is situated on the right side it is natural that the surgeon should regard the appendix as the cause. An operation is equally indicated in either so that no harm is done to the patient by incorrect diagnosis. It is true that the great majority of these cases recover and yet no one can tell in any individual case that grave hemorrhage will not occur, that even though a patient may have been rallying from an attack and the depression following rupture, yet with increased activity of circulation the plug may be driven out and hemorrhage recur. This is one reason why immediate operation should be done even if the condition of the patient seems fair. I agree with Dr. Nason in those cases in which it is evident that rupture has taken place for some time and large portions of blood have been poured into the abdominal cavity. Here the removal of the blood is advisable because it may become infected from the intestinal tract. In regard to the diagnosis in the early stage, there is no positive symptom which will enable the physician to say that hemorrhage has occurred but by raising the upper part of the body and percussing over the symphysis you will usually find dulness when the accumulation is large.

SOME PHASES OF CHRONIC COLITIS *

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The scope of these remarks excludes acute colitis and likewise the ulcerative form of Boas. It includes those more common forms recognized under the names of mucous colitis and membranous colitis. It will not serve the purpose of this paper to take the time to go into the pathologic changes that occur in the colon in the presence of this disease. They are the usual alterations that take place in any inflamed mucous membrane. Ordinarily they may be detected by means of the proctoscope or the sigmoidoscope, but usually examination of the stools will reveal the diagnosis through the

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presence of mucus. How much mucus must be present to indicate the existence of colitis is a matter of doubt in the minds of some, but it is likely that the persistent show of any at all justifies the diagnosis. In health the mucus that is secreted by the extensive colonic membrane is kept in solution by the bile salts. These inhibit the action of a ferment found in the intestine and in the blood, known as mucinase and which has the power of precipitating mucus. In colitis the bile salts are said to be deficient, as a rule, hence the diagnostic significance of the presence of mucus in the stools.

Mucus appears in various forms. Sometimes it is in clear, jelly-like masses, sometimes in shreds, sometimes in tough pseudomembranous pieces, which may be discharged as casts of the interior of the bowel. The amount varies from microscopic quantities intimately mixed with the stools up to great masses which constitute the entire discharge. Record has been made of a single evacuation of several pounds of mucus.

Colitis is usually accompanied by discomfort or distress. At times this amounts to actual pain, which is most severe just preceding an evacuation, more particularly if much mucus of the pseudomembranous type is to be discharged. In these latter cases the pain may manifest itself only with the discharge of tough mucus.

In addition to the presence of mucus and distress or pain, most cases of colitis are accompanied by constipation. In some, where the inflammation is more severe or in which there has been committed an error of hygiene or whenever the inflammation is low down, diarrhea may appear. Many patients with colitis are subject to loose bowels and, even though the passages are not frequent, they are far from being solid. Some cases show a tendency to slight and irregular variations in temperature and have a moderate leukocytosis with a relatively high lymphocyte count.

It would appear that the healthy colon is selective in absorbing material. The diseased membrane loses this power in proportion to the degree of change, with the result that materials which are mildly toxic are allowed to enter the body, there to exert their deleterious influence. They cause anemia and a nervousness and irritability that are too frequently diagnosed as neurasthenia. Pain in various parts of the body becomes quite annoying, while fatigue and meager endurance are prominent features.

Colitis is often a secondary process. Its common causes are infectious states of the gums and teeth, of the throat and nasal sinuses, of the bronchial tubes and, in all probability, of the gallbladder; incompetency in the functionating power of the liver and pancreas; dietetic errors; and the abuse of laxatives. It is only recently that colitis has been attributed to pus, yet the relief of the bowel condition that follows on cure of the pus indicates very strongly the septic origin of the former. The antiseptic power of the gastric juice was thought to be sufficient to protect the bowel against bacterial infection, but in the nature of things this cannot be more than a partial protection, since in the presence of pus in the sinuses and mouth the drainage is continuous, while the gastric juice is secreted intermittently. Whether the pus acts directly on the colonic membrane or indirectly through the medium of the biliary ducts and pancreas is not so clear; the fact that in most cases of colitis the bile salts are deficient would point rather to the latter explanation. The great power of the pancreatic juice and of the bile in protecting the colonic membrane against the irritant properties of poorly digested food is striking. Where either of these fluids is absent, or in cases where they are present but in lessened amount or altered quality, colitis is practically certain to supervene. In achylia gastrica the bowel shows no signs of trouble, nor does the general health of the patient suffer so long as these large abdominal glands maintain their function, but let them shut down even partially in their labor and immediately colitis sets in. Ptosis predisposes to colitis; said by some to be invariably present.

The association clinically of colitis with gallbladder disease is notably frequent, and in the presence of this combination, if the bowel symptoms are pronounced, it is perfectly safe to offer the diagnosis of pancreatitis in addition. At operation in these cases, the pancreas will be found hardened and enlarged. As a practical matter, therefore, following gallbladder operations, it is necessary to see that the patient has after-treatment, having for its object the relief of any abnormal condition of the bile passages and pancreas; and also due consideration must be given to the state of the lower bowel; otherwise many of these patients suffer on indefinitely.

The relationship between colitis and appendicitis is very close. It is likely indeed that appendicitis does not occur without primary involvement of the colon in the cecal region. The appendix must be considered as a part of the colon, subject to inflammatory change from the same causes. What opposition there has been to operation for appendicitis, aside from mortality, has been based on the fact that operation so often fails to relieve the patient of the pains and discomforts of which he complained. With some exceptions these are cases of marked colitis. The colitis continues after operation, and in time if unchecked results in a pericolitis with adhesions about the cecum, adhesions which it seems more reasonable to attribute to the disease rather than to the operation. In following appendectomy cases year in and year out, it is a frequent experience to be able to note a gradually increasing mass of evidence of progressive stasis about the cecum. In accordance with these views, therefore, it would seem proper to provide after-treatment in cases of appendectomy, in which detailed attention is paid to the condition of the colon.

Colitis, while often a secondary process itself, in turn may give rise to other conditions. It is not necessary to mention the local results of inflammation in this connection nor to do more than to refer to the pains and neurasthenic symptoms that accompany the severer cases. It might be well, however, to call attention to the fact that the diseased colon permits absorption of pathogenic bacteria which may produce trouble in the joints. Joint affections may be acute or chronic and may be very severe. Some of the worst cases of inflammatory rheumatism undoubtedly have their origin in a diseased colon.

Colitis is sometimes confused with other diseases, chiefly because the stool examination is omitted. Mention has been made of the frequent removal of the appendix in conditions where a more careful examination should have shown the tenderness in the right iliac fossa to be due to colitis and not to a localized appendicitis to be cured by operation. Much embarrassment and odium could be avoided by attention to this point.

Some cases of colitis are mistaken for ulcer of the stomach and duodenum, chiefly because of the history of pain after eating. The teaching that has gained such widespread recognition that pain after meals means ulcer is quite fallacious. The ingestion of food or drink causes activity in colonic peristalsis and in some cases of colitis, where this influence is exaggerated, it is sufficient to produce pain or distress which is denominated pain by the patient.

The proximity of the hepatic flexure to the gallbladder is another source of confusion in the diagnosis. When this part of the colon is affected, it becomes a difficult matter to know whether the tenderness produced by pressure at the border of the ribs is due to trouble in the colon or in the gallbladder.

Colitis can be confused with neurasthenia (and it often is) only through carelessness.

Colitis is recognized as a most resistant disease to handle. It is essentially chronic and untreated shows no marked tendency to spontaneous recovery. There are those who consider that it cannot be cured by any known means. This is a pessimism that is beyond justification, for, while none can truthfully gainsay the claim that colitis is stubborn and resistant to treatment and that some of the worst cases are past any considerable help, it is nevertheless true that, with proper food, hygiene and medication, many cases are cured and most cases are helped even to the point of complete comfort.

Naturally in a disease of this kind, diet holds a most important place in treatment. Those who have chosen to write on the subject in detail are at wide variance in their recommendations regarding the feeding of colitis patients. They are in many instances directly contradictory in the foods they advocate. The brief allotment of time affords no opportunity for detailed expression as to what to feed these patients, nor would it be possible to offer a single diet list that would answer for all patients regardless of the intensity of the case and the individual habits and idiosyncrasies. There are, however, certain basic principles which when understood will enable any intelligent person to prescribe a diet in these cases. First of all there is the effect of a particular food on the patient. If it does not increase the distress nor bring on an increase in the mucus or cause diarrhea, it may be looked on as a satisfactory food. Those foods that are most likely to agree are the ones that are soft, finely divided and well cooked. In the severer cases, meat should be scraped and vegetables should be passed through a colander. Fried foods are not well borne as a rule. The temperature of food makes a difference; iced foods and drinks are best avoided. Chemical irritants, such as the spices, pepper, mustard and the like, are not to be used. Raw vegetables, and fruits whether cooked or not are seldom permissible. Fruit juices may be employed in some instances of moderate severity, but the pulp of fruit is never to be advised except in the mildest cases.

The most efficient guide, in guarding the patient against errors in dietary advice, is the frequent examination of the stools by the microscope. It is a good rule never to add more than one new food at a time to the diet list, and to search the stools after each addition for signs of failure to take care of this particular food.

If it is found that the article under investigation is well taken care of, another may be added and the search repeated.

Next to diet in the treatment of colitis comes hygienic regulations. Exercise must be regulated, always with the thought in mind that the endurance of these patients is much reduced and overexertion is harmful to them. Rest is essential. Bathing is of value, and in most instances should be warm rather than cold. Mental rest and freedom from worry is probably more important than physical. General massage may be employed, but the abdomen should be excluded. Electricity has been used and seems to have a beneficial influence over the constipation, and in some instances relieves pain.

Locally, hot fomentations help a great deal in relieving the intestinal spasm and the consequent distress. Enemas of flaxseed, chamomile or normal salt are of service in cleansing the lower bowel and relieving to a degree the irritation there. One of the most valuable agents is olive oil injected into the sigmoid at night in quantity of half a pint or more and allowed to remain over night. It comes away in the morning after soothing the bowel and helps more than any other remedy to overcome the constipation that is so troublesome in these cases. A limitless number of other things have been used locally, but few should claim attention. The best of these are argyrol, bismuth and iodin preparations. Small quantities of these injected low down are carried by reverse peristalsis to the higher parts of the colon and are often of great benefit. Argyrol in particular has a most striking effect on pain.

A word in regard to laxatives in these cases would not be amiss. It is needless to say that where it is possible to avoid them, they should never be employed. Yet there are cases where it seems impossible to get away from them entirely. Here the choice of laxative offers a problem that is often difficult of solution. The most popular remedies in use in this country at least are on the whole as bad as could be selected. Too much condemnation cannot be offered against the unrestricted use of calomel, without which many physicians feel it is impossible to begin the treatment of any disease. Aloes and cascara are quite irritating to the lower bowel, and there are few colitis patients who can use them with impunity. The salines are less harmful. Castor oil is the best for occasional use; when something is needed for more continuous use such drugs as podophyllin and jalap appear in practice to do less harm.

In order to correct the deficiencies of the liver, it will be found valuable to employ bile salts. In addition, secretin and enterokinase, so important to pancreatic activity, are very useful and can be had commercially. Belladonna is of such general use in these cases that its employment must always be considered. It has the effect of relieving the spasm in the bowel, easing the pains and discomfort and of helping against the constipation.

Tonics have their place and nerve sedatives also, as well as a host of other drugs which must be called into service for symptoms or intercurrent troubles.

DISCUSSION

Dr. Samuel G. Gant, New York: It is, indeed, a relief to have a man talk of colitis and diarrhea and let Lane's kinks and the colon alone for a time. We know what is becoming of the Lane fracture plates, and I think the same process will follow in regard to his kinks, as constipation and colitis are more frequently rectal than abdominal. It is easy to differentiate between the two varieties, but that has nothing to do with this paper. The doctor has mentioned many causes of colitis, all of which I have observed, and we have all seen instances of the influence of the mind on the nervous mechanism of the intestinal canal. I was glad the doctor used the word colitis instead of dysentery, which must be discarded as colitis should be classified according to the etiological factors concerned. I think patients with colitis are often overtreated. Once you have a chronic ulcerative colitis, catarrhal or specific, the disease must be treated locally. I think the Roentgen ray and the microscope are overrated. When you have chronic ulceration and diarrhea you can make a diagnosis by the symptoms, by proctoscopic inspection of the rectum and macroscopic examination of the stools.

Every year I am called on to operate on dozens of patients for hemorrhoids who have colitis. A little blood on the shirt should not occasion a diagnosis of hemorrhoids and an operation. Medical men criticise surgeons for doing appendicostomy and cecostomy in colitis, claiming patients do not get well. Under such circumstances when they do not recover care is not taken to see that the irrigation medication comes in contact with all sides of the bowel. The best nonoperative way of treating colitis is to place the patient in the inverted position and fill the colon with coal oil (about a quart). I commend what Dr. Zugsmith has said about olive oil. The stools can often be reduced by flushing the colon with 20 grains of nitrate of silver in a quart of water. If this causes pain wash out the colon with a saline solution. In addition put the man on a diet of baked potatoes and unsalted butter and let him go where he pleases.

Dr. Lawrence Litchfield, Pittsburgh: Of the milder type of chronic colitis one of the commonest causes which I have observed is local treatment—too many enemas. One of the laxatives which Dr. Zugsmith did not mention and which I have found very helpful in those cases in which we have to give something is one of the heavier forms of liquid paraffin. I have been struck by the association of chronic colitis with neurasthenia and hysterical conditions. It is possible that the nervous condition inhibits the secretions of the liver and pancreas. In those cases which are enteroptotic, congenital or acquired, I find the greatest benefit in a course of rest and feeding as is so successfully carried out by William Gerry Morgan in Washington.

Dr. Zugsmith, closing: Apparently Dr. Gant and I were talking about a different kind of a case. I was very glad to hear what he said because it filled out my remarks and was very wholesome to me.

Regarding the nervous cases mentioned by Dr. Litchfield, I would say that there is nothing to prevent colitis occurring in people who are nervous or hysterical. There is, however, no question in my mind that the absorption of material from the colon and the constant irritation present are enough to add to the nervousness and hysteria and to make patients nervous if they were not so before. The association of colitis with ptosis is so frequent that it is of necessity found in many patients who are nervous. The absorption from the bowel and the irritation increase their nervousness; as these improve the nervousness ceases to a very great degree, if not altogether.

THE VALUE OF ROENTGEN RAYS IN THE DIAGNOSIS OF PULMONARY TUBERCULOSIS *

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A beam of Roentgen ray is a beam of light. It responds to practically all of the physical tests of ordinary light. Its wave length is exceedingly short as compared with sunlight, and it has the power to penetrate all objects in proportion to their densities. It emanates from a focus point, travels in a straight line, and is not deflected or refracted by ordinary media. Its action on the photographic plate is similar to that of sunlight or artificial light. A photograph is a record of reflection of light, the shadows being of greater or less density. A roentgenogram or skiagraph is a record of light penetration, the shadows being of greater or less density corresponding to densities of structure. We all interpret the shadows on the photograph with equal ease for the reason that we see the reflecting surfaces with the naked eye and are familiar with them. One person interprets the shadows in the roentgenogram more accurately than another for the reason that he is more familiar with the effect of the ray on the photographic plate, and the relative densities of tissues and substances, as well as their arrangement in the body, either in the normal or pathological state.

The principle of stereoscopy applies to roentgenography exactly as it does to photography, and furnishes us the appreciation of depth dimensions in addition to those of length and width.

A beam of Roentgen rays has the property also of exciting fluorescence in certain materials. A screen covered with such material will reveal to the eye the shadows cast by objects penetrated by the rays. The fluorescent screen does not show fine detail in the shadows, so that its use is limited. It applies admirably, however, to the study of moving parts and collections of fluids.

We are here to speak of the value of this penetrating light in the diagnosis of pulmonary tuberculosis of the lungs, the pathology of which has been well known to medical science for many years.

Lung tissue is made up of myriads of small air spaces, the walls of which are exceedingly thin. It offers almost no obstruction to the passage of the Roentgen rays. The bronchial tubes and blood vessels are so dense by comparison that in the roentgenogram of the normal lung, the shadows of these structures can be traced almost to the periphery. In tuberculosis, larger or smaller areas of these air spaces are replaced by the products of the action of the tubercle bacilli, and the results of defeat or victory on the part of the tissues in combating the infection. Instead of air spaces there are masses of tissue, exudate, or the products of necrosis; and these are by comparison quite opaque.

The Roentgen rays are under control with accuracy almost equal to the handling of electricity. The record produced on a sensitive plate is a true record. The shadows of varying density have been cast by tissues of corresponding variations in density, and it only remains necessary to interpret the shadows correctly in order to procure facts. If the shadows, by their size, shape, arrangement and density, correspond to the well-known size, shape, arrangement and density of the lesions of tuberculosis, and to nothing else, then we feel justified in saying that tuberculosis is present.

The lesion characteristic of tuberculosis is the tubercle, regardless of its location. No one knows how many tubercles are required to produce symptoms. It is not known how soon the individual tubercles coalesce and form conglomerate tubercles. The size of the tubercle, individual or conglomerate, is subject to great variation. In fact, every aspect of the lesion and disease is variable within wide limits.

The fact we would impress on you is that

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* Read in the Section on Medicine of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 21, 1916.

very small tubercles cast definite and recognizable shadows on the roentgenogram. This is probably the most important fact to be mentioned in this paper, for we believe it is the earliest dependable sign available to the roentgenologist. It is at the same time the keynote in differential diagnosis of lung tuberculosis.

On page 252 of the tenth edition of Delafield and Prudden we read: "Miliary tubercles are small nodules of irregular shapes, the smallest hardly visible to the naked eye." Manifestly, it would be ridiculous to claim that tubercles so small as to escape the naked eye on cut section could be shown on the roentgenogram. On the other hand, many of the miliary tubercles that are visible on cross section can readily be seen in the stereoscopic roentgenogram. In support of this statement we would cite a case in which another roentgenologist made a diagnosis of diffuse pulmonary tuberculosis from stereoscopic plates of the chest. Without the knowledge of his opinion, or any other data in the case, the writer made the diagnosis of acute miliary tuberculosis. These independent interpretations were disbelieved by the clinician in charge. He thought it impossible that such information could be obtained by means of the Roentgen ray. Within a few weeks autopsy revealed miliary tuberculosis of the lungs and practically all of the abdominal viscera. The shadows of hosts of miliary tubercles were visible.

As to the shadow-casting property of the well-formed conglomerate tubercle there is no question, whether newly formed or healed, and regardless of its depth from the surface. Since tuberculosis is the only disease in which such small masses are found in great numbers and in patches, their presence is at once diagnostic. The only other condition that shows numerous small masses is anthracosis; but in this the distribution is so general and even throughout both lungs, and the shadows are so dense, as to determine at once the presence of anthracosis. In such a lung, small tubercles could not be recognized as such.

We believe that no matter what the anatomical or pathological type or extent of the lesion may be, the Roentgen-ray diagnosis must be based on the presence of tubercles, small or large, whether active or healed. This is true of autopsy diagnosis as well. There may be extensive fibrosis in one or more portions of the lung, as well as cavities, but the pathologist does not report tuberculosis unless he finds tubercles, large or small. It matters not what pathological type may predominate, there are always tubercles more or less isolated.

The roengenogram will not reveal the histology of enlarged glands, so that one cannot interpret them as tuberculous before the stage of calcareous deposit.

The dense shadows at the hilus, due to glands, large amounts of lymphatic structure, thick bronchial walls, and especially large blood vessels, even in normal chests are variable, and in this location one cannot recognize early the presence of tubercles. After leaving this dense area, infected bronchial tubes soon acquire a beaded appearance due to the projection of tubercles into the lumen or from the outer surface. Usually one or two of the larger tubes and their branches are involved, so that by comparison with the general, more or less smooth thickening of chronic bronchitis, the tuberculous lesion is striking in appearance. We believe that there are many more cases of true bronchial lesion without parenchymal involvement than is generally accepted, and there is no doubt many roentgenologists, as well as clinicians, have failed to recognize this condition. Dr. Heise (unpublished) has shown plates demonstrating the progress of the bronchial involvement into the bronchovesicular structures in cases that did not respond promptly to treatment, and this was not revealed by physical signs. We would cite a most remarkable case in this point:

A young lady about 35 years of age was taken ill and treated for influenza. Her convalescence was considered protracted. Her physician's report, based on a careful physical examination, especially arranged for, was that the patient had not followed his instructions, and that she was slowly convalescing from influenza. He did not even ask for a specimen of sputum. The patient was taking pertussin on his prescription. The absence of her entire right shoulder, including the arm, scapula and clavicle, amputated many years before because of sarcoma, offered unusual access to her right chest for percussion and auscultation.

A consultant at once told us that she had active tuberculosis of the right upper lobe. Her sputum was literally loaded with tubercle bacilli and she had all the classical symptoms of acute pulmonary tuberculosis. Unfortunately, for our present purpose, we did not make a Roentgen-ray examination at that time. Under treatment she recovered. She remained away from school one year, but has been teaching each year since that time and is in the best of health at present, six years after the onset of the disease. A few months ago we made stereoscopic plates of her chest for the special purpose of having a record of a lesion considered healed for five years. We were astonished to find that there was practically no evidence of fibrosis or calcareous deposit in any portion of the parenchyma of either lung. There was definite thickening along two of the main bronchi.

When the parenchyma becomes involved, the recognition of the tubercles is again essential to the Roentgen diagnosis, either in the miliary or bronchopneumonic type. The formation of the tubercle is always associated with more or less exudate in the surrounding air vesicles, and we believe that when the exudate is excessive it may so obscure the shadows of the tubercles as to prevent definite Roentgen-ray diagnosis until the tubercles become larger, of more dense structure or isolated tubercles appear outside the exudate area. The exudate will, of course, cast a more dense shadow than surrounding air vesicles, but such shadows in the absence of tubercle shadows cannot accurately be interpreted as tuberculous. The same appearance would be found in any other localized exudative inflammation. In this respect it is well to recall the teaching of Dunham, who claims that this filmy shadow of exudate in characteristic location, and triangular in shape, with the apex toward the hilus, is the earliest and the real pathognomonic Roentgen-ray sign of pulmonary tuberculosis.

Dunham's wide experience in the study and handling of tuberculosis clinically, as well as his extensive and magnificent Roentgen-ray studies, commands for his opinion the greatest respect and confidence. However, we believe that the patients are so rarely seen by the clinician or roentgenologist in this early exudative stage, that to depend on it in the doubtful cases would often lead to error in the hands of any but the most experienced. And further, we believe that the value of this sign is limited to the early stages of the more acute and virulent cases of the bronchopneumonic type.

The bronchopneumonic type is by far the most common in our experience, and the chief value of the Roentgen ray is that it reveals small areas of involvement in the depth of the lung equally as well as near the surface, and herein also lies the greatest difficulty with other physical tests.

The usual distribution and advance of the disease is well known from autopsy studies. We also learn from such studies that many people have had the disease in larger or smaller areas without recognition during life; also that there are numerous atypical cases; and, since a large portion of the recognized cases are discovered only after the lighting up of an old lesion, it becomes a valuable procedure to learn of old lesions as early as possible. In this respect the roentgenogram is as efficient as the pathologist's knife and eye put together, and has the advantage of being an ante-mortem process.

An early second infection is as important as an early first infection. Again we have a most interesting case in point:

> A physician, who devotes all his time to the clinical diagnosis and treatment of chest diseases, had vague symptoms while a student some years ago. He was advised to exercise great care but was not told that he had tuberculosis. His was a suspicious case. Recently, after repeated physical examinations because of uneasiness in his own mind he was not considered tuberculous. One day he expectorated a bit of blood, and on examining his sputum tubercle bacilli were found. He then came to us for an Roentgen-ray examination. Stereoscopic plates showed in the clearest manner, that at some time in the past he had a limited infection of one apex. It was distinctly of the discrete and scattered tubercle or nodular type, and the lesion had healed by calcification. His present lesion in the same lobe, at a lower level, is again over a limited area, of the same character of distribution and nodular. The tubercles are almost uniform in size, and their density is distinctly not that of calcareous deposit or of fibrosis. His first lesion, which was not definitely diagnosed, could certainly have been revealed by Roentgen-ray examination; and again, his second infection could certainly have been demonstrated long before the diagnosis was revealed by blood spitting and microscopic study of the sputum.

So far we have considered only the more acute or early stages, in the several anatomical structures. You need only recall the pathological course of the various types of lesion and their tissue or product density as compared to normal lung tissue, to appreciate their shadow casting properties to transmitted rays.

When the tubercles and surrounding exudate become organized into fibrous tissue, the lesions are much more sharply defined, and more dense. Also, their shadows on the roentgenogram are correspondingly sharp in outline and dense, entirely unlike the appearance of the early tubercle or area of pneumonia. The fibrosis of tuberculosis produces a rather characteristic appearance on the sensitive plate. It is in patches and bands radiating in the direction of the bronchial tubes, but may be in large masses. However, there will be numbers of smaller nodules outside of the larger areas, some of them calcareous, and it is on the shadows of these, rather than of fibrous masses, that we depend for diagnosis.

We are convinced by frequent Roentgen-ray observations as well as by autopsy reports that extensive fibrosis may be present without producing physical signs. It is equally true that in many instances when physical signs are positive, the roentgenogram reveals a far more extensive lesion than was suspected and complications entirely undiscovered by physical signs.

We believe that a true knowledge of the extent of fibrosis, the presence of deep-seated cavities, encysted interlobar collections of fluid, the presence of diaphragmatic adhesions, the amount and distribution of pleural effusions or the presence of localized bronchial thickening is of the utmost value in any case, and these conditions are clearly shown by means of the rays. Surgical procedure in the complications of this disease is entirely dependent on Roentgen-ray findings; then why should they not have an important bearing on medical procedures?

Tuberculous pleurisy excludes Roentgen-ray diagnosis until there is definite thickening, or exudate formed, and even then cannot be said to be tuberculous unless tubercles can be recognized in adjacent lung tissue.

Pneumothorax is generally considered to be a sequel to localized tuberculous pleurisy, and we cannot definitely refute this opinion, for a single tubercle might be sufficient to produce a small adhesion, and one would not recognize so small a lesion in the pleura. Nevertheless, we have excellent plates of a chest, recovered from spontaneous pneumothorax, diagnosed and treated by most able clinicians, in which there is no trace whatever of a tuberculous lesion, and the lung has returned to its normal relations. On the other hand, we have plates of numerous cases in which the roentgenograms reveal extensive pneumothorax, as well as extensive pulmonary tuberculosis.

The Roentgen rays are of great value in doubtful cases. Many of them are shown to have definite lesions, while many others are so clearly free from infiltration that the clinician is led to seek the cause of symptoms elsewhere. Again, it has frequently happened that in studying patients for gastro-intestinal or other lesions, we have found the most definite evidence of pulmonary tuberculosis that had not been discovered clinically.

The negative diagnosis by means of the rays must not be accepted too freely, for dense root shadows may be caused by any one of many conditions. They are not distinctive until tubercles develop outside this dense area, and in the meantime the most virulent tuberculous infection may be present in the hilus glands alone. This is especially true in children.

A negative diagnosis cannot be made in any case without stereoscopic plates of high quality, so again the value is limited in that class of patients who cannot be made to understand what is required of them, either because of deficient mentality, foreign language, excessive debility, or fright.

A single roentgenogram is far better than none at all, but is never to be considered when stereoroentgenograms are possible. From the single plate one does not learn the depth in the lung tissue at which the lesion may be, and he cannot recognize, with any certainty at all, small tubercles.

We are considering the possible value of the Roentgen rays. This may not tally at all with the value which you have experienced, but you must be fair and place the blame where it belongs, on the inexperienced, unobservant, or incapable so-called roentgologist.

In Roentgen-ray diagnosis of pulmonary tuberculosis, both technical skill in making the roentgenograms and skill in interpretation are essential. There are many in the land who possess the former, but too few who have acquired the latter skill. The physician who devotes his time to the handling of tuberculous patients does neither himself nor his patients justice unless he associates himself with a competent roentgenologist or devotes himself to the intrepretation of roentgenograms as consistently as he does to the other physical signs. It is not sufficient to say that he has not the time, for he should not assume more responsibility than he is capable of discharging fully. He should easily become proficient in such reading, for in any condition the interpretation of roentgenograms is made far easier with the knowledge of physical signs and clinical phenomena than without them.

The roentgenogram does not reveal the virulency of the bacilli nor the susceptibility of the patient. It has only a limited value in determining the question of activity of the lesion, except in the very early and the well-healed lesions. These are most vital points in determining the significance of the pathology present.

One may depend on it, however, to show the advance of the disease process or its retraction from time to time, as well as to enable the physician better to interpret the physical signs and clinical phenomena, and classify the lesion.

And finally we are convinced that whenever tubercle bacilli can be found in the sputum, the case has well passed the stage at which positive roentgenographic diagnosis could have been made.

We would conclude: (1) That the Roentgen ray or penetrating light is a well-understood light energy under human control, and that it penetrates all objects in proportion to their density. The roentgenogram is a record of penetration of the light, and the shadows are true to the density of the objects penetrated. (2) That the tubercle is the characteristic lesion of tuberculosis, and that tubercles of macroscopic size, whether miliary or conglomerate, cast recognizable shadows on the sensitive plate. (3) That the presence of tubercle shadows is essential to definite Roentgen-ray diagnosis, regardless of the variety, stage or extent of the lesion. (4) That the lesion in the depth of the lung is as easily recognized as one at the surface, and that this is not true of other methods of physical diagnosis; also, that the disease may thus be more readily classified than by any other means except autopsy. (5) That the roentgenogram furnishes the best record, as to extent, and gross character of the lesion at any given time, or subsequent time. (6) That in the acute exudative stage of bronchopneumonic phthisis the tubercle shadows may be obscured by the exudate shadows, and that there may be other cause of localized exudate than tuberculosis. The presence of a previously healed area would be strong corroborative evidence. (7) That the roentgenogram frequently reveals the presence of more or less extensive tuberculosis when the disease has been overlooked clinically, and that the lesion is usually shown to be far more extensive than physical signs indicate. (8) That the complications are thus more accurately determined than by other means, and that surgical procedure is entirely dependent on the Roentgen-ray findings. (9) That lesions of the pleura cannot be said to be tuberculous unless tubercle shadows are found in the adjacent lung area. (10) That this procedure is of special value in doubtful cases for the reasons above stated. (11) That the negative diagnosis of early tuberculosis cannot include the hilus area, and that stereorentgenograms of excellent quality are essential to negative diagnosis in any portion of the lungs. (12) That both technical skill and interpretative skill is required for best results. The physician who specializes in the handling of tuberculous patients should acquire the latter sort of skill. (13) That while the shadows of early lesions differ from those of the old lesion, they do not in any sense reveal the virulency of the organism present nor the susceptibility of the patient. Herein daily attention to physical signs and clinical phenomena are essential. (14) That the Roentgen-ray findings enable the physician to better interpret the physical signs and clinical phenomena. (15) That in the Roentgen ray properly applied we have a means of diagnosis as positive as the findings of tubercle bacilli in the sputum, but at a stage usually much earlier than this.

Southeast Corner Fifteenth and Locust Streets.

DISCUSSION

DR. GEORGE E. PFAHLER, Philadelphia: This very excellent paper covers the subject so thoroughly that it will bear rereading until every point has been thoroughly impressed on the mind. A great impetus has been given to the study of pulmonary tuberculosis by means of the Roentgen rays since stereoscopic roentgenograms have been made more practical, and by means of well-prepared stereoscopic plates, a skilled observer can detect tubercles in the lungs that are no larger than a pinhead.

The Roentgen rays have been used, however, in the diagnosis of tuberculosis, and some valuable information has been obtained at least during the past eighteen years. As a consequence our skill in interpretation has been gradually developed. While stereoscopic plates make the diagnosis more accurate, a well-prepared plate made of the anterior surface of the chest and one of the posterior surface of the chest will give information which, generally speaking, is more accurate than that obtained by physical signs, as I have been able to prove even ten years ago. There is no reason, however, for making the comparison between the knowledge obtained by physical signs and that obtained by roentgenography excepting to make those who are unfamiliar with its use to understand its value, for in every instance there should be both a careful physical diagnosis as well as a Roentgen study.

As Dr. Manges has well said, the Roentgen rays cannot tell the virulence of the infection nor the resistance to the disease on the part of the patient, excepting that an acute infection has a different appearance from a chronic or old and partially healed lesion, but full knowledge of a case is only obtained by means of a carefully taken history, accurate and skilful physical examination, and a thorough Roentgen study, and, since the diagnosis must be accurately made before skilful treatment can be directed, the earlier this thorough study is made, the better. One should, today, be able to detect tuberculosis before the appearance of tubercle bacilli in the sputum. The old idea that tuberculosis cannot be definitely diagnosed until tubercle bacilli are found in the sputum must be given up if we want to do most for this class of patients.

Dr. Manges has well emphasized the importance of skill in interpretation. This is only obtained by careful study and long experience, and it requires as much care and experience to become skilful in the interpretation of these Roentgen negatives as is required of the microscopist in the diagnosis of sections of pathological tissue. We all can look into the microscope and see the microscopical section which has been prepared, and we can learn to do this part easily, but most men realize how difficult it is to interpret the picture under the microscope and determine definitely the pathology present. The same is true of a roentgenogram or x-ray picture.

A Roentgen study is valuable in all cases, but it is especially desirable in the early and recurrent cases in patients who are having a slight recurrent fever without known cause, or who have some obscure condition in the chest which has not been definitely diagnosed. A large cavity may be present in the center of the chest, and not be recognized. The lesions about the roots of the lungs are difficult of recognition even by the most expert physicians.

This Roentgen study is also especially important in the study of chests of children. As is well known, infection in children often develops about the roots of the lungs. Physicians realize the difficulty in determining lesions about the roots of the lungs even in adults, and in a crying, struggling baby, this is even more difficult, yet a roentgenogram which can now be made almost instantaneously will make a record which is far more accurate than the information that can be obtained otherwise. This does not mean that the rays should be used to replace physical diagnosis, but to assist. After we, as roentgenologists, have had many experiences in which large cavities have been overlooked and extensive pulmonary infiltration undiagnosed even by expert physicians, we are impressed more strongly than physicians in general as to the value of the Roentgen rays in diagnosis.

The difficulty in Roentgen-ray diagnosis of pulmonary disease today is not so much in not finding the disease as in determining the nature of the disease after it has been recorded on the photographic plates, and even the most expert must be still in doubt on certain points. By a careful cooperation on the part of the physician and roentgenologist, these doubtful points will gradually be made clear, and a decided step made in advance in the diagnosis and treatment of pulmonary tuberculosis.

Dr. J. I. Johnston, Pittsburgh: Certain roentgenologists have emphasized the fact that in very early tuberculosis, the activity of the process, which is of great importance, cannot be determined by the roentgenogram. Nevertheless, every clinician, studying a case of suspected tuberculosis, should follow up his observation of all physical signs with a plate. It seems to me that the internist in the early case has greater opportunity for the determination of the infection and its activity than the Roentgen ray can possibly have. The part that the Roentgen ray can give us is the amount of damage done to the lungs by lesions which are present. Before such damage is demonstrable, it can be recognized only by the internist. As Dr. Pfahler has said, the ideal method would be a combination of the two branches of work at an early period of the infection. Unless the roentgenologists can define these cases by different methods than the plate shows at present, I do not see how he can say that the process is active. This belongs to the internist.

DOCTORS DEFEND SWINDLE

The Journal of the A. M. A. of March 24, in commenting on the fraud order issued by the Postoffice Department against sargol, "the get fat quick" nostrum, the promoters of which were recently found guilty of fraud and fined $30,000 after promising that the business would be discontinued, has the following to say concerning expert testimony:

> Of course the Sargol Company had no difficulty in producing "experts" to uphold its claims. There never was a medical swindle so preposterous that members of the medical profession could not be hired to defend it. The Sargol case recalls the disgraceful state of affairs that was disclosed at the Wine of Cardui trial when the American Medical Association was put on the defensive because of its activities in attempting to protect the public from medical humbug. In that trial the "patent medicine" interests were able to employ members and Fellows of the American Medical Association who not only lent aid and comfort to the enemies of the public health but attempted to discredit the testimony of decent physicians who belonged to the same organization of which these persons were members.
>
> So in the Sargol case we find appearing in defense of this outrageous fraud physicians who, by virtue of their membership in their county and state societies, were enabled to become Fellows of the American Medical Association. They were:
>
> *Ernest Ellsworth Smith, M.D.*, New York City.—Member of the New York Medical Society, member of the Medical Society of the State of New York.
>
> *Howard L. Davenport, M.D.*, Auburn, N. Y.—Member of the Cayuga County Medical Society, member of the Medical Society of the State of New York.
>
> *Michael P. Conway, M.D.*, Auburn, N. Y.—Member of the Cayuga County Medical Society, member of the Medical Society of the State of New York.
>
> *Gibson Benjamin Mack, M.D.*, Auburn, N. Y.—Member of the Cayuga County Medical Society, member of the Medical Society of the State of New York.
>
> The Sargol case has many points of interest to the profession. For some years the Propaganda Department of *The Journal* has been receiving letters from physicians calling attention to Sargol and asking why it was possible for such an obvious swindle to be perpetrated year after year, and no action be taken. The facts in the Sargol trial answer this question. The postal authorities went to great trouble to collect evidence for the purpose of protecting the public against this fraud. The trial lasted many weeks and is said to have cost the United States more than $100,00. Although the business was palpably fraudulent, although the claims made for the nostrum were patently false, the defendants were able to employ physicians, who held membership in their local societies and, through that membership, fellowship in the American Medical Association, to go on the stand and swear that Sargol was a "flesh builder" and "bust developer"! Is it any wonder when such conditions obtain within the medical profession that officials whose duty it is to protect the public against fraud hesitate to attack humbugs of a medical nature? Medical fraud flourishes not only because of the credulity of the public, but also because of the low ideals or the venality of a few members of the medical profession.

We fail to understand why any medical society making claims for decency in its membership should be obliged to retain on its membership rolls the names of men who not only are a disgrace to the medical profession, but are a positive detriment to those organizations that are endeavoring to create and maintain a high standard of ethics in the practice of medicine. It brings to our mind the argument oftentimes made that we are too zealous in securing numbers rather than quality in our county medical societies.—*Jour. of Indiana State Med. Assn.*, May 15, 1917.

FAITH

"Oh, doctor, I have sent for you, certainly; still, I must confess that I have not the slightest faith in modern medical science."

"Well," said the doctor, "that doesn't matter in the least. You see, a mule has no faith in the veterinary surgeon, and yet he cures him all the same."—*Sacred Heart Review.*

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ATHENS, PA., JULY, 1917

ERIE'S DISGRACE

The educational authorities of the city of Erie have written a disgraceful page in Pennsylvania's history.

Unfortunately, for some few years past Erie and the city of Niagara have been headquarters for an antivaccination campaign and for the publishing of antivaccination literature. A number of misguided individuals willing to accept election to the board of school directors and at the same time willing to file oaths of office, have winked at enforcement of the vaccination laws and have tried, by various subterfuges, to continue drawing their appropriation while not complying with the law. Disgrace has recently been written into the history of the city by having three unvaccinated pupils sicken with smallpox while in the high school, and today it is said that five hundred pupils are remaining out of school because they have not been vaccinated and a hundred and eighty-one unvaccinated pupils have submitted to vaccination since this outbreak. It is further intimated that the school authorities are going to continue in setting a shameful public example to the youth of Erie by disobeying the law and by secretly giving examinations to pupils who cannot now go to school, so that they may enter classes again next year without being vaccinated and without being disqualified.

Erie's disgrace in this particular is further augmented by having two pupils in the Training School for Nurses at the Hamot Hospital sicken with the disease. These nurses were never vaccinated, notwithstanding the regulations of the hospital requiring vaccination as a prerequisite for entrance to the training school.

It is to be hoped that the Superintendent of Public Instruction may see his way clear to hold up the state appropriation to the school board of Erie when this evidence of the violation of a mandatory statute of the commonwealth is laid before him.

CARE OF THE PRACTICE OF PHYSICIANS ABSENT IN THE SERVICE OF OUR COUNTRY

There has been appointed in each county an auxiliary committee which is subordinate to the State Committee of National Medical Defense which in turn is subordinate to the Council of National Defense. Each committee, therefore, may be said to be under government control, and it should know no society, sect or ism, but welcome all legally qualified physicians. The first duty of this committee is to facilitate the furnishing of a sufficient number of qualified medical men for the army, navy and Red Cross, and, so far as possible, to do this without crippling hospitals and localities. It is not generally recognized that more medical men than surgeons are needed. An important function of the committee is to provide ways and means for the care of the practice of any physician who is absent in the service of our country, and to keep it intact, so as to be able so far as possible to hand it over to the physician on his return to civil life. The committee should also provide relief for any needy dependents of an absent colleague.

Many of the county societies have passed resolutions promising to pay the annual dues of a member called to the colors, and to protect his practice, but few societies have made any definite plans for so doing. Philadelphia was probably the first society to promise to look after the practice of those entering the country's service. It has promised to turn over to the physician or his family two thirds of the collections, and has adopted a systematic plan with blanks, cards of introduction, etc. Other societies promise to turn over one half and others one third to the absent physician.

Allegheny is the first county to publish in full a definite plan. This is given in the *Weekly Bulletin* for June 2. Any physician in Allegheny County can enroll as a member of the committee on payment of $5. The committee is to have a chairman, secretary, treasurer, searcher, visitor, arbiter and a manager. A down-town office has been secured, and Mr. George D. Edwards, vice president of the Commonwealth Trust Company, is to act as treasurer. Physicians doing any work for an absent colleague will make weekly report and turn over 40 per cent. of the total amount collected, 35 per cent. to go to the absent colleague or his family and 5 per cent. into the general fund to cover expenses. Charged accounts will be collected by the manager.

Some physicians will arrange with other physicians to look after their practice. This plan has its advantages, but it does not provide for the turning over to the absent physician a portion of collections from patients who exercise their right to select the physician of their choice in the absence of their former physician. Any plan will have its advantages and its disadvantages. The main thing is for us doctors to be willing to do the right thing by those who respond to their country's call, while we from choice or from necessity remain at home. It is well, however, to have as much uniformity as possible in the plans adopted in different localities

ACTION OF THE A. M. A. ON ALCOHOL

The Council on Health and Public Instruction, consisting of Drs. Frank Billings, Chicago; W. B. Cannon, Boston; W. S. Rankin, Raleigh; H. M. Bracken, Minneapolis; Milton Board, Louisville, and F. R. Green, Chicago, in their annual report, presented the following resolutions, which were referred by the House of Delegates to the Reference Committee on Legislation and Political Action:

> Whereas, It is the unanimous opinion of the Council on Health and Public Instruction of the American Medical Association that alcohol has no drug value, either as a stimulant, as a tonic, or as a therapeutic agent, and that it has no food value; and
>
> Whereas, Its use as a beverage or as a therapeutic agent is detrimental rather than beneficial to the individual; therefore, be it
>
> *Resolved,* That the House of Delegates of the American Medical Association, at its Sixty-Eighth Annual Session, declares it is opposed to the use of alcohol by individuals either as a medicine or as a beverage; and be it further
>
> *Resolved,* That its use in medicine is permissible only in the preparation and preservation of pharmaceutical products.

The Reference Committee, after considering the resolutions from Monday until Thursday, presented the following report:

> Since the first premise of these resolutions expresses an opinion held by the Council, and since the expressions of opinion from numerous members of the House and the Association lead us to the conclusion that the status of alcohol in medicine is still undetermined, your committee begs to amend the resolutions by substituting the following:
>
> Whereas, We believe that the use of alcohol as a beverage is detrimental to the human economy, and
>
> Whereas, Its use in therapeutics, as a tonic or a stimulant or as a food has no scientific basis, therefore be it
>
> *Resolved,* That the American Medical Association opposes the use of alcohol as a beverage, and be it further
>
> *Resolved,* That the use of alcohol as a therapeutic agent should be discouraged.

These resolutions of the Reference Committee were adopted after a substitute and an amendment had each been rejected by the House.

It is hoped that Pennsylvania physicians will respond to this action of the parent body and discourage the use of alcohol as a beverage and as a therapeutic agent. Individual physicians are of course at liberty, personally and therapeutically, to use their own discretion in these matters, but the entertainment committees of medical societies will hesitate to provide alcoholic beverages. This will be easier, since the absence of such entertainment at medical gatherings during the past few years has been the rule rather than the exception, and because the annual gatherings this year of most organizations have been characterized by a spirit of economy and patriotism.

In this connection The Journal announces the publication next month of a paper by Dr. Samuel Calvin Smith on "Alcohol as Revealed by Modern Scientific Research," an article which was requested and has been in preparation for more than a year.

THE TREATMENT OF DRUG AND ALCOHOLIC PATIENTS

When in New York City last month it was the editor's privilege to spend a couple of hours in the Charles B. Towns Hospital. This institution was found to be fully equipped with all modern apparatus and with a resident staff of three physicians and several well-known consultants. It is only fair to say that the editor had been prejudiced against the institution and had already quietly determined in his own mind not to accept from it a contract solicited by The Journal's advertising agent. Nothing, however, was seen or heard while there to which the most ethical physician could take any exception. The treatment is scientific and has been fully given to the profession,[1] and the fact that the physician referring the patient is requested to watch the case and study the daily chart, should remove any feeling of suspicion. In this connection Mr. Towns[2] has said: "I have always worked in the closest and most perfect harmony with physicians who have sent cases to me and have never permitted any of the doctors employed in my institution to visit a patient who has left my care."

Attention is called to another quotation from this book, in which the author says: "I urge every city and state to establish places that will drive me out of business. I urge physicians to take up this treatment and cure their own colleagues. I have no secrets." Would that we had more such institutions with desirable locations, proper equipments and specially qualified physicians, where drug and alcoholic patients could receive scientific treatment. Scattered here and there over the state are many private sanatoriums, some of which are doing excellent work and have been admitted to our advertising pages, but the majority of these sanatoriums are on or beyond the borderline of worthy institutions.

The State Institution for Inebriates was created by the legislature of 1913, which made an appropriation of $20,000 for the use of a commission to "select a site and supervise the construction of an institution for the detention, care and treatment of inebriates, or persons habitually addicted to the use of alcoholic drinks or intoxicating drugs." A small piece of land was purchased at Rossmoyne, near Carlisle. No appropriation was made in 1915. This year a bill appropriating $250,000 passed the legislature, and at this writing is in the hands of the governor.

There is need for a special hospital for inebriates, and a need for a law specially designed for these cases. The present law for inebriates is deficient in that it provides for only pay patients. Under it a certain number are admitted to state hospitals for insane every year, a thing which ought not to be, and which is one of the main arguments used by proponents of the State Institution for Inebriates.

THE PITTSBURGH SESSION

The program for the Pittsburgh Session will appear in full in the August issue and will be found to be one of the most attractive programs ever presented by a state society. The physicians of Pittsburgh are planning to give the members of the society the opportunity to see good clinics and an interesting Roentgen-ray exhibit, and to take good care of the ladies. The commercial exhibit, as usual, will be second only to that of the American Medical Association. The reservations already made at the hotels indicate a large attendance. The headquarters will be at the William Penn Hotel, which has 1,000 rooms, each with bath (see advertising pages). Engage your room and make your plans to spend the best part of the last week in September at Pittsburgh.

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[1] Jour. Am. Med. Assn., Sept. 25, 1909, p. 985; Boston Med. and Surg. Jour., May 11, 1911.

[2] Towns, Charles B.: Habits That Handicap, Century Company, New York.

HONOR ROLL FOR JULY

The following component county societies have forwarded the *per capita* assessment for more members than they paid for in 1916. The figures indicate the percentage of members paid for 1917 as compared with the number paid for 1916:

	Per Cent.
Schuylkill County	113
York County	113
Center County	111
Delaware County	110
Bedford County	109
Huntingdon County	109
Crawford County	106
Dauphin County	106
Greene County	105
Lehigh County	105
Luzerne County	105
Montgomery County	105
Montour County	105
Northumberland County	105
Potter County	105
Clinton County	104
Philadelphia County	104
Carbon County	103
Tioga County	103
Allegheny County	102
Chester County	102
Columbia County	102
Somerset County	102
Washington County	102

AN OFFER TO COUNTY SOCIETY LIBRARIES

The University of Maryland has just been furnished the first seven volumes and one number of Volume 19 of The Journal, which were needed to complete a full set for binding. Complete sets are found on the shelves of many of the state and university libraries, and every county society should possess a full set. Any county society willing to have it bound for its library can have a set gratis as long as the supply holds out. These should be secured before it is too late, as at this writing not more than three complete sets of the unbound Journal can be had, though there are on hand more than that for most numbers.

Each county society should also have a complete set of the bound volumes of the Transactions which were furnished the members previous to 1897. A few sets, lacking only the first four years, can be supplied to county society libraries without cost except for transportation. Any one having Volume I, II, III or IV, 1848 to 1853, of the Transactions are requested to communicate with the secretary of the state society.

CHANGES IN MEMBERSHIP OF COUNTY SOCIETIES

The following changes have been reported since the June Journal was printed:

Allegheny County: *Removals.*—John A. Barr from McKees Rocks to 7038 Jenkins Arcade Bldg., Pittsburgh; Joseph A. McCready from Pittsburgh to Greenwich, Ohio. *Transfer.*—Chevalier Jackson to Philadelphia County Society.

Blair County: *Removal.*—David F. Haagen from Altoona to 330 West Fifty-First Street, New York.

Cambria County: *New Members.*—Fremont C. Jones, Ebensburg; Francis M. B. Schramm, Johnstown.

Center County: *New Members.*—James R. Bartlett, Pleasant Gap; James C. Rogers, Bellefonte.

Clinton County: *New Member.*—Joseph E. Tibbins, Beech Creek. *Removal.*—William P. Gillespie from Altoona (Blair County) to 130 South Forty-Eighth Street, Philadelphia.

Columbia County: *New Member.*—J. Sidney Hoffa, Benton. *Removal.*—Charles K. Albertson from Fairmount Springs (Luzerne County) to Benton.

Crawford County: *New Members.*—Hugh Jameson, William G. Johnston, Joseph C. Wilson, Titusville.

Cumberland County: *New Member.*—Harry A. Spangler, Carlisle.

Dauphin County: *New Members.*—Robert Edwin Barto, Elizabethville; John F. Blecher, Middletown; Robert McGuigan Hurst, Steelton; Samuel A. Kirkpatrick, New Cumberland; William B. Kirkpatrick, High Spire; Leon Samuel Marshall, Halifax; John Baer Zeigler, Penbrook.

Delaware County: *New Member.*—Ralph E. Powell, Marcus Hook. *Removal.*—Frances Weidner from New York City to Twenty-Sixth and Chestnut Streets, Chester.

Fayette County: *Removal.*—Joseph P. Ritenour from Uniontown to Pennsylvania State College, State College (Center County).

Franklin County: *New Members.*—S. J. Connor, Waynesboro; Thomas H. Gilland, G. A. Lowell, Greencastle; Robert B. Varden, Mercersburg.

Jefferson County: *Removal.*—Arthur R. McNeil from Apollo (Armstrong County) to 130 Main Street, Brookville.

Lackawanna County: *New Members.*—Harmon O. Baldwin, Dalton; Frank Carroll, William E. Keller, J. J. Lonsdorf, Jr., James E. O'Toole, John J. Sullivan, Scranton; Alquin J. Davis, Peckville; William F. Dixon, Carbondale; Helen Houser, Taylor; Albert Novack, Throop; Stephen S. Watson, Moosic.

Mercer County: *Death.*—Charles B. Williams (Univ. of Pittsburgh, School of Medicine, '03) committed suicide while in a despondent condition, June 3, in Sharon, aged 41.

Northumberland County: *Death.*—Albert T. Poffenberger (Jefferson Med. Coll., '79) in Sunbury, June 1, from a complication of diseases, aged 54.

Philadelphia County: *New Members.*—Melamed Bernard, Charles E. Bricker, Harold S. Broomall, Frank M. Coyne, George W. Deitz, Ernest M. Dorsett, John H. Egan, Leo N. Gartman, Stephen A. Hamill, Elizabeth M. Hughes, Chevalier Jackson (by transfer from Allegheny County), John Bayley Jones, Albert N. Legg, John H. Lilly, J. W. McConnell, Henry J.

Miller, William F. Morrison, William C. Ryan, Henry B. Shmookler, Joseph M. Spellissy, John S. Thorp, Arthur J. Wagers, Edward F. Walsh, Sr., S. Leslie West, Philadelphia. *Removals.*—Eugene A. Case from Wake Forest, N. C., to 49 West LaCrosse Avenue, Lansdowne (Delaware County); Robert Kilduffe from Chester (Delaware County) to 1133 Spruce St., Philadelphia; Ray Parker from Norristown (Montgomery County) to Mt. Sterling (Fayette County).

Schuylkill County: *New Members.*—John Rhoads, Ringtown; Raymond H. Stutzman, Tower City; Hamilton C. Wallace, Pottsville.

Venango County: *New Member.*—Irvin H. Boyd, Oil City. *Removal.*—Charles P. Snyder from Philadelphia to Polk.

Washington County: *New Members.*—Thomas M. C. Faddis, Charleroi; Hunter Perry, Washington. *Removal.*—Ralph C. Farquhar from Monongahela to California.

Wayne County: *Removal.*—Edward B. Gavitte from White Mills to Fairmount City (Clarion County).

York County: *New Members.*—William B. High, York; George B. Perry, Yorkana; Charles Nelson Wolf, Hellam.

PAYMENT OF PER CAPITA ASSESSMENT

The *per capita* assessment for the year 1917 has been received from component county societies since June 8, as acknowledged on pages 677-679 of the June Journal, as follows:

June 11,	Columbia	45	6717	$ 2.75
June 26,	Delaware	88	6718	2.75
	Washington	114–115	6719–6720	5.50
	Franklin	48–51	6721–6724	11.00
	Schuylkill	102–104	6725–6727	8.25
	Clinton	25	6728	2.75
	Cumberland	35	6729	2.75
	Venango	54	6730	2.75
	Cambria	109–110	6731–6732	5.50
	York	124–126	6733–6735	8.25
	Philadelphia	1781–1795	6736–6750	27.50
June 28,	Lycoming	102	6751	2.75
June 29,	Chester	86–88	6752–6754	8.25
	Lehigh	98	6755	2.75
June 30,	Allegheny	1040–1044	6756–6760	13.75
July 5,	Philadelphia	1796–1815	6761–6780	68.75
	Westmoreland	145–146	6781–6782	5.50
	Luzerne	197	6783	2.75
July 6,	Center	31	6784	2.75
July 7,	Northampton	120–121	6785–6786	5.50

STATE NEWS ITEMS

MARRIED

Dr. Stanley Freeman and Miss Miriam Levy, both of Wilkes-Barre, May 14.

Dr. Herman H. Farkas and Miss Pauline Silverman, both of York, June 3.

Dr. F. Albert Donlan, Lilly, and Miss Evangeline Dougherty, Altoona, May 29.

Dr. Rufus Sargent Reeves and Miss Edith Clayton Godshall, both of Philadelphia, June 7.

Dr. Abner R. Renninger and Miss Caroline Bell Freeman, both of Philadelphia, June 9.

Dr. Jacob Leon Herman, Philadelphia, and Miss Leonora Owsley Ackley, Norristown, May 12.

Dr. Clifford Hood Arnold, Chester, and Miss Audrey Trayser Dillon, Richmond, Va., June 5.

DIED

Dr. Samuel Stanley Cooperman, in Philadelphia, June 6, aged 24.

Dr. Daniel B. McLean (Jefferson Med. Coll., '73) in Brumfieldville, May 15.

Dr. Marion D. Snyder (Jefferson Med. Coll., '96) in Dunmore, May 27, aged 47.

Dr. Horatio Connell Jones (Temple Univ., Med. Dept., '09) in Philadelphia, May 4, aged 42.

Dr. John Bailey Sullivan (Pulte Medical College, Cincinnati, '88) in Pittsburgh, May 20, aged 66.

Dr. George H. Mathiott (Univ. of Pittsburgh, School of Medicine, '09) in Mars, May 29, aged 64.

Dr. Harry Eldridge Williams (Homeopathic Med. Coll. of Pennsylvania, '66) in Coatesville, June 9, aged 77.

Dr. Isaac Winter Heysinger (Jefferson Med. College, '67) in Philadelphia, May 18, from heart disease, aged 75.

Dr. James A. Page (Howard Univ., School of Med., Washington, D. C., '06) in Pittsburgh, June 1, from neuritis, aged 49.

Dr. Don E. Ashley (Western Reserve Univ., Cleveland, '71) in Guys Mills, May 8, from cerebral hemorrhage, aged 71.

ITEMS

Dr. Moses Behrend has been appointed surgeon to the Mt. Sinai Hospital, Philadelphia.

Dr. P. F. Moylan, Philadelphia, has been made a Knight of St. Gregory by Pope Benedict XV.

Dr. Arthur J. Davidson has been made assistant professor of orthopedic surgery in Jefferson Medical College.

Dr. Wilmer Krusen addressed the class of the Samaritan Hospital Training School for Nurses, Philadelphia, June 14.

Dr. John B. Lowman, Johnstown, councilor for the fifth district, goes to France as a member of the Jefferson Medical College Unit.

Dr. John B. Deaver was elected vice president, and Dr. John H. Gibbon, secretary, of the American Surgical Society at Boston, June 2.

Dr. J. P. Ritenour, Uniontown, has been appointed college physician to the Pennsylvania State College, to which place he has removed.

Dr. Nathaniel Ginsburg addressed the graduating class of the Jewish Hospital Nurses' Training School at the annual commencement, May 29.

Dr. Francis E. Stewart delivered the annual address to the graduating class of the Jefferson Hospital Training School for Nurses, May 24.

Dr. Jay F. Schamberg addressed the graduates of the Philadelphia Polyclinic Training School for Nurses at the annual commencement May 31.

Smallpox was found last month in fifteen different counties. Two cases were at Steelton and ten at Hazleton. See editorial on "Erie's Disgrace."

A Joint Meeting of the Huntingdon, Clearfield, Center, Bedford, Blair, and Jefferson County medical societies will be held at Tyrone, in September.

Dr. Theodore B. Appel, Lancaster, chairman of the board of trustees, has been ordered to an instruction camp as a member of the Medical Reserve Corps.

Infantile Paralysis.—There were two cases of infantile paralysis in Lancaster County last month. No case was reported in Philadelphia during June.

Liberty Bonds.—The Trustees of the Medical Society of the State of Pennsylvania have invested $5,000 in Liberty Bonds, being among the first to subscribe.

Dr. Ewing W. Day, Pittsburgh, was elected treasurer of the American Laryngological, Rhinological and Otological Society, at its twenty-third annual convention, at Atlantic City, May 31.

Col. T. H. Goodwin, chief of the staff, Royal Medical Corps, British Army will address the Philadelphia County Medical Society at a special meeting July 25, at 8:30 p. m., on the Medical Man in the War.

Dr. George R. Moffitt, city bacteriologist of Harrisburg, and a member of the Medical Reserve Corps, was on June 21 ordered to the Rockefeller Institute in New York for advanced work preparatory to entering active service.

The Physicians' Protective Association of Easton voted unanimously to take care of the practice of any member who goes to war and to turn over one half the income. Six Easton physicians have offered their services to the country.

Dr. Alfred Gordon, Philadelphia, delivered the address to the graduating class of the College of Physicians and Surgeons, Boston, June 12, his subject being Race Betterment Based on the Principles of Physical and Mental Prophylaxis.

Dr. Clara Marshall has retired as dean of the Woman's Medical College of Pennsylvania after twenty-nine years of service. Dr. Martha Tracy, Philadelphia, professor of physiological chemistry and hygiene, has been appointed acting dean.

The German Hospital of Philadelphia receives a bequest of $20,000 by the will of the late William P. Baltz of Devon, and the Philadelphia Polyclinic and College for Graduates in Medicine and the Philadelphia Lying-In Charity each receives $10,000.

Dr. Warren H. Butz, Allentown, has been appointed resident physician of the Taylor shipbuilding camp at Cornwells, which constitutes about 3,000 men. The work covers the hygiene and sanitation of the camp, the health and the treatment of all accident cases.

The Associated Physicians of Hazleton set a good example. Twenty-four of the forty-nine members signed applications for commissions in the Medical Corps of the U. S. Army. The remaining twenty-five promised to look after the patients of their colleagues, turning 50 per cent. of collections over to the families of the enlisted men.

Boosting the Medical Reserve.—Drs. C. A. E. Codman, Henry D. Jump, John D. McLean, Sigmund L. Gans and E. H. Siter of Philadelphia have visited the larger counties of the state, urging the physicians to make application for appointment in the Medical Reserve Corps. They are under commission and authorized to conduct examination for the service.

The Allegheny County Medical Society held its third annual picnic at the Pittsburgh Field Club, June 27. This outing partook of the nature of a patriotic meeting, there being present Col. T. H. Goodwin, R.A.M.C., a member of the British Commission; Maj. Franklin H. Martin, Chief of the U. S. Officers' Medical Reserve Corps; Drs. C. A. E. Codman, and H. D. Jump, Philadelphia.

Second Line of Medical Reserve.—Physicians of Philadelphia more than 55 years of age and consequently past the age for military services have organized under the auspices of the Philadelphia County Medical Society and will offer their services to the government for activities within their abilities, such as the examination of recruits for the army, the care of the injured, sick, disabled and convalescents, the care of defectives, the giving of lectures and demonstrations, and the like.

Baby Saving Campaign.—The second annual baby welfare exhibit and campaign in Altoona was held May 31, June 1 and 2. Dr. A. S. Kech had charge of the committee which examined the 126 babies and the following was the program: Thursday afternoon, "Hygiene of the Home," by Dr. Maloney of the State Department of Health; "Care of Teeth," by Dr. Fred Miller; Friday evening, Symposium of Infant Care; Saturday afternoon, "Prenatal Care," by Dr. James S. Taylor. There was a large attendance at the exhibit and the lectures.

Medico-Chirurgical Buildings for Naval Hospital.—Negotiations are now under way by which the present buildings of the Medico-Chirurgical College and Hospital will pass under the management of the Red Cross and will be organized and maintained as a naval hospital. The city will allow the buildings to remain in their present location, and the hospital will be maintained for the duration of the war. The hospital will have capacity for about 250 patients, and Logan Square will be utilized largely for recuperation of convalescents.

The Central Pennsylvania Surgical Society.—This is a new organization which meets four times a year. Its inception was at Johnstown and the next meeting will be held in Altoona, August 1. The purpose of the organization is both didactic and clinical. The men in whose town the meeting is held demonstrate by clinical methods any line of surgery in which they are most interested, and show, as far as possible, the end-results of the same, the other members entering into the discussion and expressing freely their views. The officers are Dr. J. B. Lowman of Johnstown, president; Dr. J. D. Findley of Altoona, secretary. Other members are Drs. Howell of Altoona, Stewart and Waterworth of Clearfield, Free of Dubois, and Wheeling of Windber.

United States Base Hospital No. 10, the first Philadelphia unit to go to the front, has taken over British Hospital No. 16 in France. This hospital was organized by the Pennsylvania Hospital under the direction of Dr. Richard H. Harte, and contains 265 doctors, nurses, attendants, orderlies and stenographers. Dr. John H. Gibbon is in charge of the surgical work and Dr. George W. Norris of the medical work. Other medical men are Drs. W. J. Taylor, Francis R. Packard, William T. Shoemaker, Edward D. Dodge, Charles P. Mitchell, Norris W. Vaux, J. Stewart Rodman, William Drayton, Jr., William B. Cadwalader, William P. Swartley, Charles B. Cloud, J. Walter Levering, and William B. Wilmer. The dentists are Drs. Edwin Shoemaker and L. Foster Facks. Five other base hospitals from United States have also relieved hospitals of the allies. The government has already accepted complete units from three other Philadelphia hospitals, Jefferson, University, and Presbyterian. Dr. W. W. Babcock had raised a Samaritan Hospital unit, but the government decided not to accept any more Philadelphia units at present and Dr. Babcock has gone to Fort Oglethorpe, Ga., preparatory to work in French hospitals.

A Bill Designated Senate Bill No. 325, House Bill No. 1867, enabling the medical schools to purchase the unclaimed dogs from the public pounds, was passed by the Senate early in the month. This bill was referred to the Committee on Public Health and Sanitation of the House of Representatives and following a public hearing on May 15, at which those in favor of the bill were heard, the committee reported out the bill with the recommendation that it be passed. The bill passed its first and second readings and was referred to the same committee for further hearing. A hearing was held on May 22, at which the Antivivisection and Humane Societies only were allowed to discuss the measure, no opportunity for rebuttal was afforded the physicians present and many untrue and misleading statements passed unchallenged. It is understood that the committee following this hearing reported out the bill once more, this time with a negative recommendation.

Mrs. D. Braden Kyle, Philadelphia, taking up the labor that was the life work of her husband, Dr. D. Braden Kyle, internationally famed as a laryngologist and teacher, who died last October, has determined to devote her energies to the alleviation of the sufferings of humanity, and will leave soon for France to work in the French war ambulance service.

The Laborer Is Worthy of His Hire.—Thirty-four of the sixty-two practicing physicians in the district bounded by East Lehigh Avenue, East Erie Avenue, North Fifth Street and Frankford Avenue, Philadelphia, at a meeting recently gave their hearty and unanimous support to the following movements: (1) That a charge of $2 be made for outside calls received between the hours of 9 p. m. and 7 a. m., and that a printed card to that effect be placed in a conspicuous place in their offices or waiting rooms; (2) that a minimum charge for obstetrical cases be $15; (3) that the minimum charge for office consultation be 75 cents after March 1, 1917.

GENERAL NEWS ITEMS

Dr. Thomas A. Emmet, New York, celebrated his eighty-ninth birthday on May 29.

Iowa Physicians Patriotic. — Seventeen out of forty physicians in Council Bluffs have made application for the Medical Reserve Corps.

The Trustees of the American Medical Association, during the New York Session, voted to invest the sum of $20,000 in liberty loan bonds.

Dr. Charles H. Mayo, president of the American Medical Association, received the honorary degree of doctor of science from Princeton University, June 16.

Dr. Hugh Hampton Young, Baltimore, head of the commission appointed to represent the medical service of the American Army abroad, has arrived in London.

"What's the Matter with Pocatello?"—Since May 26 eight out of sixteen physicians of Pocatello, Ida., have entered the service, one in the navy and seven in the army.

Medical Reciprocity Between Mexico and Japan. —Diplomas of doctors graduated by recognized schools of medicine in either country are recognized in the other and their bearers admitted to practice without examination.

The New York City Children's Hospitals and Schools, Department of Public Charities, held interesting clinics and presented a valuable exhibition of the methods and the work of the educational division, on Randall's Island, on May 31, and June 1, in connection with the A. M. A.

Protecting the Practice of Absent Physicians. —The following state medical societies at their recent meetings decided that those physicians who remain at home should volunteer to care for the practice of those called to serve and to turn over one third of the collections, in some cases more, to the absentees: New York, Mississippi, Missouri, Michigan.

Special Arrangement for Care of Rejected Recruits.—The Council on Medical Defense Committee of Kings County, N. Y., has arranged to supply medical treatment for recruits rejected by Army, Navy or Marine Corps service. The recruit is supplied with a blank referring him to recognized institutions and in these institutions will be given aid according to his defect so as to make him eligible for service.

The American Board for Ophthalmic Examinations will hold its next examination Oct. 30, 1917, at Pittsburgh, at the close of the meeting of the American Academy of Ophthalmology and Oto-Laryngology. Those desiring to take the examination should make application before August 1. Application blanks and further information may be secured from the secretary, Dr. F. C. Todd, 506 Donaldson Bldg., Minneapolis.

Fraudulent Proprietary Medicines.—The sale of Kilmer's "Swamp Root," "Varlex" and "Sargol" has been ordered discontinued in Cleveland since the inauguration of the City Bureau of Laboratories' Crusade against fraudulent proprietary medicines and other misbranded preparations. "Swamp Root" is largely a dilute alcohol-water solution of sugars and absolutely injurious in the case of kidney disease, which it professes to cure, according to the bureau's analysis. "Sargol" claimed to be a flesh builder.

Medical Supplies Short.—The danger of a serious shortage in medical supplies was pointed out at the joint meeting of the American Medical Trades Association and the Wholesale Surgical Trades' Association in New York recently. Japan is now furnishing a large part of our supplies but this is not enough to make up for the shutting off of supplies from Germany. The officials of these two associations, in cooperation with the government, are making plans for the coordination of the output of all manufacturers so that there may be no waste as the result of duplication.

Trained Nurse Can Administer Anesthetics in Kentucky.—In the suit of the State Board of Health against Dr. Louis Frank and Margaret Hatfield, trained nurse, the lower court pronounced it illegal for the nurse to give an anesthetic without first standing an examination before the board and securing a certificate to practice medicine. The Court of Appeals, in an opinion by Judge Hart, May 4, reversed the decision of the lower court, and held that merely "giving the medicine prescribed by the physician in charge, who diagnosed the case and directed the manner and time and character of the medicine to be administered," is not practicing medicine.

The National Committee for Mental Hygiene has created a subcommittee on furnishing hospital units for nervous and mental disorders to the United States Government, the project having been approved by Surgeon General W. C. Gorgas of the U. S. Army. This subcommittee, of which Dr. Pearce Bailey of New York is chairman, is authorized to secure the services of alienists and neurologists to be commissioned in the Officers' Reserve Corps, Medical Section, and to serve in the neuropsychiatric units which are to be attached to the base and other hospitals of the military services of the United States. Further information will be given and application forms sent to physicians qualified in this branch of medicine, on application by letter or in person to the National Committee for Mental Hygiene, 50 Union Square, New York.

Booze and Patent Medicine.—The antiprohibition forces are making strenuous efforts to tide over the inevitable legislation that will put the booze business out of commission. From the number of books, pamphlets and newspaper advertisements that are appearing, it is evident that an enormous amount of money is being spent, but to any thinking person it is apparent that this lavish expenditure of money is wasted effort. The interesting feature to physicians is the long delayed argument now put forth by the liquor dealers that if prohibition is to prevail why not put patent medicines off the market, for, as pointed out by the antiprohibition manual, with the unregulated sale of Hostetter's Stomach Bitters containing nearly 45 per cent. of alcohol by volume, and a large number of other patent medicines and so-called tonics containing large amounts of alcohol, the steady drinker will have no difficulty in obtaining booze. Furthermore, it is a question if the brewers and distillers will not see a way out of their difficulty in the possibilities offered through the origination of new patent medicines, each having a large alcoholic content. In short, no prohibition law is going to be effective unless it wipes out the iniquitous patent medicine industry, for already the sale of patent medicines in dry territory has increased enormously.—*Jour. of the Ind. State Med. Assn.*

Resolutions by the American Medical Editors' Association.—The committee appointed June 4 to consider appropriate ways and means to aid in recruiting the personnel of the Medical Reserve Corps of the United States military forces presented the resolution as follows:

Whereas, The need of medical reserve officers for both the army and navy is the paramount question of the day, therefore be it

Resolved, (1) That the members of this association pledge themselves to publish prominently at least three times within the ensuing three months, a copy of the official personal application blank with an explanatory comment on the proper procedure to be employed in transmitting the same to the Surgeon General's office.

(2) That all medical journals of this country be urged to present editorially the needs of the military services in this crisis and the immediate necessity for securing the full complement of medical officers for the same.

(3) That this committee be continued in office after this meeting and be empowered to expend for carrying out the provisions of this resolution a sum not to exceed two hundred and fifty dollars.

(4) That a copy of these resolutions be forwarded to the Surgeons General of the army and navy and that the Association of American Medical Editors in convention assembled, herewith pledges its hearty and unstinted support of all measures designed for the development of the medical forces in this hour of need.

Decrease in Mortality from Pellagra in 1916.—That the death rate from pellagra dropped very considerably in 1916 is shown by the experience of the Metropolitan Life Insurance Company, which has a large number of policy holders in the section of the country where the disease prevails. In recent years pellagra has very rapidly increased in importance as a cause of death. In 1911, the number of deaths in the company's experience was only 277; in 1915, this number had increased to 650. During this period the rate had increased from 3.6 per hundred thousand exposed persons, to 6.7. In 1916, the number of deaths dropped to 368, and the rate to 3.6 per hundred thousand, exactly the same as in 1911. Comparing the year 1915 with 1916, there was a decrease of 46 per cent. in the rate. This appears to bear out the tentative conclusions of the government experts who are studying pellagra; namely, that the disease is not of infectious origin, but is probably one of the so-called "deficiency" diseases induced by insufficient, poorly balanced dietaries. The experience of the Metropolitan shows, furthermore, that the disease is much more prevalent among colored people, and more frequent among females than among males. The incidence of the disease increases with age; there is no exception to this fact up to the age of 65. There is in effect good indication that the measures instituted by the U. S. Public Health Service and the hypothesis on which their work has been planned are sound, and we may confidently expect this comparatively new scourge soon to be brought under control.

BULLETIN EXCERPTS

BULLETIN, BEAVER

A Threat or a Promise (?)

My Dear Doctor Editor:

I hear that you are sore at—or on—the members of the Beaver County Medical Society, because they do not send in copy. I do not know of anything that riles the disposition of the compositor more than lack of copy. Now Doctor, Editor, we are going to apply the "emolient" copy to your sores so abundantly, regardless of composition, that they—the sores—will be reduced to spots of comfort and satisfaction. At the same time we are going to hunt up ads. for you and we are going to patronize the people who advertise in your columns, we are going to do everything possible to keep the Editor and incidentally *The Bulletin*, alive and kicking—it's the kicking that is responsible for this copy—however bad it may be. It would be a dire calamity to let *The Bulletin* expire. As I go around over the state I hear nothing but commendation of the Beaver County *Bulletin* from members of other county societies. Every member of our society must come up to its support. Report your cases—every doctor is daily meeting with cases worthy of being recorded in the columns of *The Bulletin*. Report your cases to the society. The papers read before the society are didactic lectures, necessarily—more or less—usually mere reproductions of the books and medical periodicals. The report of cases is a clinic—your personal experience—the practical application of the didactic lecture.

Report your cases. J. H. W.

BULLETIN, BERKS

Will You Volunteer?—The Program Committee has, up to this time, found no difficulty to secure material for our programs and we do not anticipate having any during the remainder of the year. We have seen quite a number of the members and have received promises from nearly every one. There are, however, still a number, whom we have not been able to see, and to those we are particularly addressing ourselves. We are anxious to have good programs; we desire to have interesting meetings; we want to make it worth while coming; we want every one to go away feeling you will be a better doctor for having read the papers. We believe this to be the end which every medical society should strive to attain. Are you willing to do your part? To a few should not be left the burden and responsibility, but every member should volunteer, in fact should be anxious to prepare a paper. There is no disputing the fact that he who prepares and reads a paper derives the most from it and is the richer in knowledge for his efforts. How many interesting cases do you recall which, if properly "worked up," would make excellent reading and be of interest to every member? What physician cannot remember such cases, even in the ordinary run of simple diseases, which have presented some peculiar phases and characteristics? Make notes of these facts, go into the history of the case, work it out in all its details, make it a thorough study, and the subject of a paper, read it before the society and thus help yourself and the other fellow. Will you volunteer? The Program Committee is anxious to get you. Tell us.

MEDICAL REPORTER, CHESTER

These are times of great interest and excitement among physicians. Officers of the U. S. Army are visiting our county medical societies for the purpose of obtaining recruits for the Army Medical Corps and for the Medical Reserve Corps. Units large and small are being organized in most of our hospitals for medical work at home and abroad. The state society is interesting its members in medical defense and general medical preparedness. Red Cross branches and auxiliaries are springing up in every town and village, with their various committees making surgical dressings and bandages, hospital supplies and clothing for sick and injured soldiers. The young and adventurous doctors and nurses are seeking employment in field and base hospitals at home and abroad. Hospital interns and prospective graduates are entering this service to the almost entire avoidance of ordinary private practice at home. The patriotic spirit indicated by these activities is most commendable, and does not seem to require a great amount of artificial stimulation to get all the doctors needed into the service. In the meantime the work at home goes on just as if there was no war. Births and sickness and death require their usual round of care, and this work may seem monotonous and unadventurous as compared with the work near the battle front. Possibly it requires as high a type of patriotism and devotion to high ideals for the home work as for the other. In this connection a story from the Old Testament which we learned in childhood recurs to our mind. King David had smitten the Amalekites in his usual vigorous fashion and had captured all their flocks and herds. Then the "wicked men of Belial," who had fought with the King, claimed all of the spoils and would give none of it to the old men who were faint and who instead of fighting with David staid by the brook Besor. But David said, "Ye shall not do so, my brethren, for as his part is that goeth down to the battle so shall his part be that tarrieth by the stuff." It probably is a much less thrilling experience to stay at home and raise food for the countries at war than it is to carry the colors across the enemy's ramparts (if such things are done in modern warfare), but one is as much a patriotic duty as the other. It possibly requires as much real courage and self restraint to resist the call of war as it does to face its dangers. We do not wish by these remarks to detract at all from the honest praise due those who go to the front at the call of duty, but to encourage those whose work is at home—those who "tarry by the stuff."

BULLETIN, CLEARFIELD

Facts About the Army

Much has been said and written, since the beginning of the present crisis, as to the army and navy of the United States. Not since the war with Spain have all things military come in for such a large share of public attention. In this connection it may be remarked as a rather peculiar fact that the average layman, no matter in which section of the country he may reside, is better informed as to matters relating to the navy than to matters relating to the army. The veriest landlubber knows the essential points of differences in battleships, cruisers, destroyers and other types of craft that make up Uncle Sam's fighting force afloat. On the other hand, the composition of the higher units of the army is a mystery to most persons, who read of field armies, army corps, brigades or divisions without being able to comprehend them. The smallest administrative unit of the army is the company of infantry, engineers or the battery of artillery. The higher organizations are made up as follows:

Battalion, Infantry — Four companies, commanded by a major.

Battalion, Engineers—Three companies.

Battalion, Artillery (Light)—Three batteries.

Battalion, Artillery (Heavy)—Two batteries.

Squadron, Cavalry—Four troops.

Regiment, Infantry — Twelve companies riflemen, supply company, headquarters company and machine gun company, commanded by colonel.

Regiment, Engineers—Six companies.

Regiment, Cavalry—Twelve troops riflemen, supply troop, headquarters troop, machine gun troop.

Regiment, Artillery—Six batteries.

Brigade, Infantry—Three regiments of infantry, commanded by brigadier general.

Brigade, Cavalry—Three regiments.

Brigade, Artillery—Three regiments.

Division, Infantry — Three brigades infantry, one brigade artillery, one regiment of cavalry, one regiment of engineers, one signal battalion, one aero squadron, one ammunition train, and one hospital train, commanded by a major general.

Division, Cavalry—Three brigades of Cavalry, one regiment field artillery, one battalion mounted engineers, one mounted signal battalion, one aero squadron, one ammunition train, one supply train, one engineer train and one hospital train.

Army Corps—Two or more infantry divisions, one cavalry division, one field artillery brigade, one telegraph battalion, one field signal battalion and such ammunition, supply, engineer or sanitary trains as are needed in addition to the divisional trains, commanded by a lieutenant general.

Field Army—Two or more army corps, commanded by a general.

ROSTER, COLUMBIA

Protecting the Practice of Military Physicians

The following resolutions were adopted at the meeting of June 14:

Whereas, A state of war exists between our country and Germany, and

Whereas, Some of our members will be called to the colors, be it

Resolved, That those of us who remain, to show our appreciation of their action as well as our own patriotism, do agree to attend their families and faithfully pay to this soldier or one he designates one third of all moneys collected from them. This arrangement shall continue until his return when we will return his patients to him; be it further

Resolved, That Columbia County Medical Society, during their absence, pay the dues and keep in good standing all its members who go to the front.

Joseph Cohen,
H. Bierman,
J. R. Montgomery,
Committee.

BULLETIN, CRAWFORD

Sometimes for most of us there comes the disappointment of finding that we are not big enough to do a work in which our hopes have been long set. The biggest phase of the new chivalry lies in being able to recognize our own ability, and at the same time push forward someone in our place who can and will do the thing we desire to do. It is a chivalrous thing to hold up the hands of someone else who is doing the work we longed to do.

BULLETIN, LANCASTER

It is a great pleasure for your humble writer to pen any number of short, spicy squibs which can be utilized by the editor of *The Bulletin*, and yet it becomes monotonous to recognize and read the productions of the same old scribbler in each number. There isn't a member of our society who could not contribute short, interesting items and thereby relieve the work of the editor and his staff. Get busy, boys, and let us have your contributions!

How often have we heard the remark that this or that hospital is noisy. The hospital itself is not noisy, but the people who constitute the personnel and the staffs of the hospital are noisy. A careless helper who simply does the washing or the scrubbing of the floors can be more trouble to the hospital and the patients than one would imagine. A greeting called the length of the hall or ward by one doctor to the other in a spirit of friendship can be heard by a nervous patient, and might mean the naming of that hospital as noisy. It stands to reason then, that everybody connected with the hospital should be made to understand what constitutes unnecessary noises and how their prevention can be maintained. Thoughtlessness and indifference are two of the very worst producers. The individual, whether it be male or female, doctor or nurse, executive or attendant, visitor or convalescent, patient, elevatorman or scrubwoman, chief of the visiting staff or intern; each attache of the hospital must enter into the spirit of making his or her own shelter, relief, solitude and rest, which is so essential to their convalescence. All our well-known authors of medical literature lay special stress on treatment, and among the first few words one will generally find rest—and just following it—both physical and mental. Mental rest needs quiet and it is for the sake of the patients, the individual patients, that we should make every effort to eliminate the little noises as well as the big ones. The real solution to the problem is: Hearty Cooperation.

BULLETIN, LAWRENCE

The last meeting had a very interesting discussion on fractures. This is a matter in which you can show your good sense. If you see a case in which the result is unsatisfactory, do not express your opinion until you have conferred with the man who has charge of the case. He may have done as well as possible under the circumstances. By keeping your mouth shut you will show your wisdom.

SOCIETY NOTES, NORTHUMBERLAND

The editor has recently had very forcibly brought to his mind the necessity for extreme care and cautiousness in the reduction, splinting and bandaging of fractures by which we may furnish patients better results and save ourselves much argument before the courts.

WEEKLY ROSTER, PHILADELPHIA

Caring for the Patients of Other Physicians

There appears to be a lack of understanding among members of the Philadelphia County Medical Society concerning the method adopted for the care of the practice of those men who go into military service. At the last business meeting of the society a resolution was passed declaring that it was the sense of the society that those members who did not go into service should look after the practice of those who did go, and give to them two thirds of the fees earned and keep one third for themselves for expenses; and that every effort would be made to return the patients to the practice of him who went away, according to the code of ethics. The spirit back of this resolution means that those who stay at home feel that those who go into the service are serving their country for all, and that it is no more than right that the stay at homes should contribute their work to sustain the families of those who are away. This is purely an honorable arrangement and one inspired by the principles of the golden rule. The practical working of the scheme presents some difficulties and the committee who has the matter in charge is attempting to adjust things so that they will run smoothly. The first thing for a man to do before his departure is to arrange with a friend who knows the sort of practice that he attends and will be willing to do that sort of work. For instance a general practitioner would not select a specialist and ask him to do obstetric work. A general practitioner would select a general practitioner and not a specialist. If the pay that a man receives for military service will exceed his normal income he is in honor bound to say to his substitute that he shall keep the fees but return his patients. As patients cannot always be turned over to a substitute it is hoped that other physicians will appreciate the fraternal spirit of this resolution and will turn over to the family of the man who is away the fees which he may make from any of that physician's patients who come to him. This scheme was originated in the Philadelphia County Medical Society and has been called by an army officer the "Philadelphia Idea." It is being adopted by various county organizations throughout the state. The Episcopal clergymen of Philadelphia have already adopted this scheme of helpfulness, and the lawyers are now inquiring of us how to manage it. It is trusted that the members of the society will appreciate the value of this arrangement and cooperate to the fullest extent. Further details of the plan will be published from time to time.

ROSTER, PHILADELPHIA

Resolution on Alcohol Adopted

At a meeting of the Philadelphia County Medical Society held April 18, 1917, the following resolution was adopted:

We, the members of the Philadelphia County Medical Society of the state of Pennsylvania, do hereby petition and urge the members of Congress to pass a bill prohibiting the manufacture and sale of alcoholic beverages during the time the United States is at war, in order that grains may be used to produce life giving products and the efficiency of the nation may be increased.

BOOKS RECEIVED

Books received are acknowledged in this column, and such acknowledgement must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

Experimental Pharmacology. By Dennis E. Jackson, Ph.D., M.D., Associate Professor of Pharmacology, Washington University Medical School, St. Louis. With 390 original illustrations, including 24 full-page color plates. St. Louis: C. V. Mosby Company. Price, $4.00.

Asthma. Presenting an Exposition of the Nonpassive Expiration Theory. By Orville Harry Brown, A.B., M.D., Ph.D., Formerly Assistant Professor of Medicine, St. Louis University. With a Foreword by George Dock, ScD., M.D., Professor of Medicine, Washington University Medical School, St. Louis. Thirty-six engravings. St. Louis: C. V. Mosby Company. Price, $4.00.

"At the Bar of Public Opinion." What Some Newspapers and Magazine Editors Think of the "Patent Medicine" Business and Quackery. The criticisms, coming from sources which might be financially benefited if they kept silent, are of particular interest. Prepared and issued by the Propaganda Department, American Medical Association, 535 North Dearborn Street, Chicago. Price, 10 cents.

Impotency, Sterility and Artificial Impregnation. By Frank P. Davis, Ph.B., M.D., Fellow of American Medical Association; Formerly Superintendent of Oklahoma State Institution for Feeble-Minded; Author of "How to Collect a Doctor Bill," "The Doctor: His Book of Poems," "The Physician's Vest-Pocket Reference Book," etc.; Formerly Editor and Publisher of Davis' Magazine of Medicine. St. Louis: C. V. Mosby Company. Price, $1.25.

Potter's Compend of Materia Medica, Therapeutics and Prescription Writing. With Especial Reference to the Physiological Action of Drugs, Based on the Ninth Revision of the U. S. Pharmacopeia. Including also many unofficial remedies. By A. D. Bush, B.S., M.D., Professor of Physiology and Pharmacology, Medical Department, University of Southern California. Eighth Edition, Revised. Philadelphia: P. Blakiston's Son and Company. Price, $1.25 net.

The Practical Medicine Series. Comprising ten volumes of the year's Progress in Medicine and Surgery. Under the General Editorial Charge of Charles L. Mix, A.M., M.D., Professor of Physical Diagnosis in the Northwestern University Medical School. Series, 1917. Volume I. General Medicine, Edited by Frank Billings, M.S., M.D., Head of the Medical Department and Dean of the Faculty of Rush Medical College, Chicago. Assisted by Burrell O. Raulston, A.B., M.D., Resident Pathologist, Presbyterian Hospital. Price, $1.50. Volume II. General Surgery. Edited by Albert J. Ochsner, M.D., F.R.M.S., LL.D., F.A.C.S., Surgeon-in-Chief Augustana and St. Mary's of Nazareth Hospitals; Professor of Surgery in the Medical Department of the State University of Illinois. Price, $2.00. Chicago: The Year Book Publishers. Price of series of ten volumes, $10.00.

BOOK REVIEWS

A CRITIQUE OF THE THEORY OF EVOLUTION. By Thomas Hunt Morgan, Professor of Experimental Zoology in Columbia University. Lectures delivered at Princeton University, February 24, March 1, 8, 15, 1916. Princeton: Princeton University Press. Price, $1.50 net.

In the first lecture, "A Revaluation of the Evidence on Which the Theory of Evolution Was Based," an attempt is made to put a new valuation on the traditional evidence for evolution. In the second lecture, "The Bearing of Mendel's Discovery on the Origin of Heredity Characters," the most recent work on heredity is dealt with, for only characters that are inherited can become a part of the evolutionary process. In the third lecture, "The Factorial Theory of Heredity and the Composition of the Germ Plasm," the physical basis of heredity and the composition of the germ plasm stream are examined in the light of new observations; while in the fourth lecture, "Selection and Evolution," the thesis is developed that chance variation combined with a property of living things to manifold themselves is the keynote of modern evolutionary thought. F. P.

BOTANIC DRUGS: Their Materia Medica, Pharmacology and Therapeutics. By Thomas S. Blair, M.D., Editor of *Medical Council;* Author of "Public Hygiene," "A Practitioner's Handbook of Materia Medica and Therapeutics," and "Pocket Therapeutics;" formerly neurologist to Harrisburg Hospital. Large type, fully indexed, 394 pages. Price, $2.00. Cincinnati: Therapeutic Digest Publishing Company, 1917.

Fischelis a year ago drew attention to the increasing scarcity of imported medicinal products, and urged the utilization of available native supplies. He made an earnest plea for a larger use of galenicals, especially of indigenous plant origin. Prof. A. Tschirch of the University of Berne, in a recent address, deprecated the increasing use of the so-called active principles and synthetic medicaments, and that many physicians have disaccustomed themselves to the use of plant drugs. The wish expressed by him in London in 1909, "Let us go back to drugs," has already met with a large echo.

Dr. Blair has presented in this book in concise form an argument for the restudy and enlarged use of galenicals. He is a trained pharmacologist as well as an active practitioner of medicine. He is thus competent to weigh the evidence presented from the research laboratory and that of the bedside. The author frankly admits he "realizes the fact most acutely that it is quite impossible, in our present state of knowledge, to prepare a truly scientific text" on the subject. All of the botanic drugs in common use are described, with a critical review of their therapy. The exact dose is given, how best employed and the distinctions in the use of allied drugs are gone into thoroughly. While there is evident a strong note of personal predilection owing to intimate study of various galenicals, the author is fair in giving due credit to the opinions of others. This book is practical, sensible and dependable. It has appeared at a very opportune time. A. F.

SOCIETIES

SECTION ON GENERAL MEDICINE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA

Meeting of March 26, 1917, at 8: 15 p. m.

Dr. James Tyson in the Chair.

The Advantages of the Administration of Concentrated Solutions of Salvarsan and Neosalvarsan. Dr. E. J. G. Beardsley: The paper reviews the experimental work leading up to the discovery of the therapeutic use of the chemical known as salvarsan. The original technic of administering the drug is referred to, as are also the various modifications of this technic. Much of the discomfort ocurring subsequent to the administration of the drug is apparently due to the quantity of menstruum employed. By the administration of the more concentrated solutions I believe that many of the unpleasant symptoms could be avoided. In many parts of the world clinicians are using the concentrated solutions of both salvarsan and neosalvarsan with satisfaction. For the last six years I have been administering the concentrated solutions and have been impressed with the infrequence of severe and even of moderate reactions. I administer full doses of salvarsan in 15 c.c. of menstruum and of neosalvarsan in 10 c.c. The technic is simply to puncture a distended vein and, after making sure that the point of the needle is in the lumen of the vein, attach the syringe containing the concentrated solution of the drug and slowly inject its contents.

Dr. Joseph Sailer: I have noticed this winter, particularly since the onset of the war, that reactions after the administration of salvarsan are much more frequent than before. I should like to ask Dr. Beardsley whether he has observed such increase in frequency of reaction, and whether he thinks a recent solution of the drug before its injection may not contribute to prevent severity of the reactions.

Dr. Alfred Gordon: It is exceedingly interesting to me to know that concentrated solutions of salvarsan and neosalvarsan can be innocuously administered intravenously. I should like to ask whether any of the members have had experience with the use of the concentrated solutions intraspinally? I had an unfortunate experience with the intraspinal injection by Rivaut's method in a rather advanced case of tabes in which the sphincter of the bladder and rectum were involved. The symptoms were very much aggravated; incontinence of urine and feces was more pronounced; there were bedsores, and the patient died within two or three weeks. I would hesitate very much to introduce a concentrated solution into the spinal canal. It is instructive to me to know that intravenously it can be administered so successfully as Dr. Beardsley has demonstrated.

Dr. W. E. Robertson: I am under the impression that the injection of concentrated solutions of salvarsan and neosalvarsan are known as Rivaut's method. I have had one case in which the method met with untoward result. This may have been due to faulty technic, and might have happened had I used a dilution. I suppose that I penetrated the vein and that some of the solution passed to the under side of the vein, causing a sharp reaction in the tissues. I also have used neosalvarsan in 2 cg. doses directly into the subdural space. Like Dr. Gordon, I will promise never to do it again. The reactions were very sharp and the patients very much harmed by the treatment. Only twice I did this; both times in advanced cases of tabes. In a large number of cases in which I have used the Swift-Ellis method I have had not a single untoward result. I have also given a number of direct injections, never exceeding 3 mg. of salvarsan except on the two occasions mentioned above. These also with no ill effect.

Dr. Beardsley, closing: Replying to Dr. Sailer, there is no question but that the recent supply of salvarsan and neosalvarsan given in the usual dilution (150 to 200 c.c.) has caused more severe reactions than was formerly the case. In the series of cases in which I administered the concentrated solutions there have been no severe reactions. Whether this result has been due to the fact that the drug was given in concentrated form (which seems unlikely) or whether it so happened that the material administered was really less toxic than other lots on the market is difficult to ascertain. One thing is sure, and that is that the patients who have had the concentrated solutions injected seem far more comfortable than do those in which the drug has been given in dilute solutions.

As to the administration of concentrated solutions within the spinal canal, this would seem to me a most unwise procedure and one not free from serious danger. In intravenous injection one can easily control the amount as well as the rate at which the solution is administered. Dr. Robertson has truly said that the administration of concentrated solutions is a method well known abroad and frequently used. At the time that I began its use I was not aware that the drug had been so used, but I have since learned that many men all over the world are using this method. What impressed me was that few men in this community have been using the concentrated solutions for injection, and I am glad to know that Dr. Robertson has been successful in his use of the method.

The Clinical Results of Treatment of Organic Nervous Diseases of Syphilitic Origin by the Intraspinal Method in a Series of 212 Cases. Dr. Alfred Gordon: The series of cases treated by the intraspinal method embraces 75 cases of cerebrospinal syphilis, 35 cases of tabes, 40 cases of headache, 22 cases of paresis, 17 cases of neuroses, and 23 cases of psychoses. The paper embodies my views on the serological reactions and the clinical manifestations before and after treatment, and the following conclusions: The results obtained in the 212 cases are bound to develop a spirit of optimism. In some cases the expectations are greater than in others, and in some the amelioration of the nervous and mental manifestations are short of being considered brilliant. A calmer consideration of the actual facts, however, does not permit one to be over sanguine, notwithstanding the brilliant results. There are sufficient recurrences to warrant the conclusion that the last word in the treatment of nervous and mental diseases of syphilitic origin is far from having been spoken. On the other hand, a mere comparison of the results obtained from the old methods of treatment with those from the newer procedures must convince an impartial observer that the latter are much superior to the former. A procedure which enables us to bring spirocheticidal reagents into direct contact with the cerebrospinal system intraspinally and intracerebrally seems to be the most logical one. It points the way in which our efforts should be directed. The future success lies in the perfection of that method.

Dr. W. E. Robertson: My own feeling in the matter, after giving a fairly large number of subdural injections, is still one of doubt. I am convinced that the method is entirely unnecessary in the early stages of tabes. In the later cases, despite a moderate amount of success, I by no means feel certain that success would not have been obtained by perhaps pushing still harder the intravenous route. I do not believe that the subdural route is at all times unfraught with risk. One does get evidence of irritation, though this evidence passed off in all of my cases except the two to which I referred a few moments ago. With either one of the two better known methods we get a certain amount of irritation, but this does not last long. I feel, however, just as it is certainly true of paresis, that in any other form of nervous syphilis we will not meet with success if the condition is well stamped, being of very long duration; certainly, not more by the subdural route than would be possible by the intravenous. Another point to which I wish to refer is the value of gold sol, which we have been using for some years. We find that we may get marked clinical betterment and absolute disappearance of the Wassermann reaction and yet the gold sol will remain positive. In my own private laboratory we have studied in the last three years 500 spinal fluids, and only this week we have had three cases in which the Wassermann tests were absolutely negative, having at one time been positive, and yet the gold sol is still well marked. Two of the cases were tabetic, and one paretic. Perhaps this might be the evidence which would justify us in the use of the subdural route. It is unfortunate that our earlier results were obtained at a time when we did not check up our gold sol work as we do now with the standard 1 per cent. sodium chlorid and sodium alizarin sulphonate, but now we feel that they are absolutely dependable.

Dr. Gordon refers to the intermittent claudication of the cerebral vessels or some closure of the vessels which is only relatively permanent. This was referred to by H. Charlton Bastian in his book on aphasia fifteen or eighteen years ago. I should also like to ask whether Dr. Gordon made routine counts in the spinal fluid and whether he places any dependence on them. Dr. Weston at the Warren State Hospital said that they varied from day to day in the cases under their care in that institution.

Dr. Gordon, closing: As I said in the beginning, I do not rely absolutely on the laboratory findings, which are only corroborative. If clinically the patient presents symptoms of syphilitic infection of the nervous system I do not wait for a Wassermann. With the gold sol test I have had experience similar to that of Dr. Robertson in that with a negative Wassermann the gold sol has been not infrequently positive. The latter is an extremely sensitive test, but in spite of it I have found some surprisingly contradictory results, and my feeling is that in treatment we cannot rely exclusively on the laboratory findings. Regarding results, as Dr. Robertson has said, in some cases we are discouraged by treatment. In this special series observed during a period of eighteen months, every case had a very vigorous treatment with the mercurials and iodids before they came under my care. While the injections are not a panacea for all cases of syphilis of the nervous system, it seems to me that the intraspinal method is decidedly superior to the old methods of treatment, and this is particularly seen in the early cases.

The Value of Sputum Cultures in the Diagnosis of Pulmonary Tuberculosis. Dr. John A. Roddy and Mr. David R. Brewer: There were three phases to this investigation: (1) Sputum culture from a series of test cases of pulmonary tuberculosis, which constantly showed tubercle bacilli microscopically. The result of this showed: (a) Petroff's medium and its modification by Williams-Burdick is superior to Dorsett's and other media for the purpose of obtaining cultures of tubercle bacilli direct from tissue; (b) Petroff's method of preparing the sputum for culture is superior to other methods; (c) About 59 per cent. of tubes planted with sputum known to contain tubercle bacilli showed cultures of tubercle bacilli. (2) Culture of sputum from patients presenting clinical signs of tuberculosis but without tubercle bacilli discoverable in the sputum on microscopical examination. The patients in all stages of development of the disease, early and late cases, were included, and the results showed a sufficient number of positive cultures where microscopical examinations were negative, and where clinical signs were slight or doubtful, to suggest that this method is a valuable and practical method of studying doubtful cases of tuberculosis. (3) The third phase of this work was an examination of the sputum from all patients studied, for the presence of molds, yeasts or higher bacteria as etiological factors in cases clinically diagnosed pulmonary tuberculosis. The group included several hundred patients and no case of blastomycosis or infection with other members of the Saccharomycetes or Hyphomycetes groups was found. From which the authors concluded that blastomycosis is not prevalent in Philadelphia at the present time.

This work will be fully reported in the *New York Medical Journal.*

Dr. Keilty: It is probably true that I reported to the Philadelphia Pathological Society the first work in this city on the use of the Petroff method for the isolation of the tubercle bacillus. Both pure cultures and contaminated cultures are obtained by the use of this method; 129 out of 135 have been obtained, but we have not gotten anywhere near that proportion of cultures. After having done a great deal of work, I thought this failure was probably due to our technic. Mr. Taylor is working on a group of cases at the present time with the hope of increasing the number of cultures. The problem is a difficult one because of the degree of technical skill required. When all other methods have failed and when it is absolutely necessary to make a diagnosis, I feel that a valuable method would be neglected if this were not tried. The success of the method depends on having the conditions correct for the growth of the tubercle bacillus and retarding the other organisms present in the sputum. I think Dr. Roddy and Mr. Brewer are to be congratulated on their extremely interesting and careful work. No one knows better than I the difficulties of the technic.

Dr. Charles M. Montgomery: I should like to ask Dr Roddy and Mr. Brewer how their results compare in a general way with the results of the guinea-pig inoculation test.

Dr. E. J. G. Beardsley: When Dr. Roddy spoke to me of entering on this work it seemed to me that the amount of careful work necessary to bring the study to a successful conclusion was tremendous. After hearing the report, I am confirmed in that thought. Any method by which we could determine with absolute accuracy that a patient in whose sputum no bacilli could be found by the usual methods was tuberculous would certainly be of the greatest service. From an experience of twelve years in active service in medical dispensaries, it has seemed to me that the majority of the cases in which there is difficulty in establishing a satisfactory diagnosis prove to be "lung cases." In only a small proportion of these questionable lung cases are we able to find tubercle bacilli. At the Medical Dispensary of the Jefferson Hospital we find that year after year a large percentage (20 to 35 per cent.) of our patients are so-called lung cases, and that although many of us feel that the greater number of these patients are tuberculous, it is a most difficult task to prove them so by sputum examinations.

It is not surprising that there will often be a difference of opinion among clinicians regarding this group of cases. One will feel that the case is a chronic infection with influenza bacilli, another that it is a pneumococcus infection, while still another will think that it is a latent infection with Koch's bacillus. After having such patients under observation for a number of years, one often feels much more sure of the tuberculous nature of the difficulty by observing other members of the patient's family, or by witnessing the complications that afflict the patient. In almost every medical clinic we can show three or four or more cases with suspicious physical signs rather than suspicious symptoms.

The patients may come complaining of vague gastric symptoms, or of equally vague pains in the chest and body, of nervous symptoms of an indefinite nature or of weakness. Physical examination often reveals faulty expansion, slight impairment of resonance over the upper lobe areas, occasional râles, especially after cough and various slight changes in the breath sounds. Very infrequently can one find bacilli in the sputum of such patients, even when the physical signs are sufficiently marked to make one almost certain that the symptoms are due to tuberculous infection. The excellent work of Dr. Roddy and Mr. Brewer may certainly throw light on a certain percentage of these cases and it is help that is greatly needed.

Dr. Roddy, closing: I should like to be able to answer Dr. Montgomery's question. It is the question I had in mind when first considering this work. It seemed possible that we might have a method equal to or superior to the guinea-pig inoculation test, but I am not much further ahead than when I started with that idea. I have been trying to correlate the cases, but the work requires a long time. Personally, I do not have as much implicit faith in the results of the guinea-pig inoculations as most people do. From what I have already seen I think the present method is pretty nearly as valuable as the guinea-pig inoculation, and that is all I can say. I have obtained cultures occasionally when the guinea-pig inoculations failed, and the subsequent course of the case proved the presence of tuberculosis.

Mr. K. P. Taylor: I should like to ask Dr. Roddy whether he can explain why the percentage of positive diagnosis of tubercle bacilli by the Petroff method cannot be raised above 59 per cent. In my own work along this line I find that the difficulty can be attributed to two causes: (1) Contamination, and (2) the apparent failure to locate tubercle bacilli in the sputum. Along the line of contamination, I have isolated one group of organisms which will resist sodium hydrate up to between two and three hours. Along the other line, I have been making efforts to swab the throats of patients, and by using several swabs I hope to increase the possibility of getting tubercle bacilli, thereby increasing the probability of getting cultures. I should like to ask whether Dr. Roddy has had any experience along this line.

Dr. Roddy: The organism I have most frequently found as a contaminant is the micrococcus cinnabareus. I think the principal reason we did not get a higher percentage of positive cultures is the time required for the work. We limited the work on each of these examinations to two hours, because we felt that that was the maximum time that could be devoted to the test, were it to be an available test in clinical diagnosis.

Dr. Joseph Sailer presented the following reports:

1. A Case of Heart Block, Apparently Accelerated by Trauma.

2. Pneumonia, with Special Reference to the Therapeutic Use of Lumbar Puncture.

3. An Atavistic Skull.

Dr. James E. Talley: Recently I saw a patient with pneumonia in a hospital where there was no electrocardiograph, and in the midst of the epidemic I was unable to get even a polygraph tracing. The family physician told me that this patient had had a pulse of 40 for a long time. During the attack of frank pneumonia in this case of heart block, it was interesting to see the respiration rate run, most of the time, above the pulse rate.

Dr. J. H. Austin: I should like to ask Dr. Sailer whether he considered the heart block in the last tracing complete or partial.

Dr. Alfred Gordon: In reference to the question of lumbar puncture, several years ago I read a short paper on the question of lumbar puncture in severe headache in infectious disease, based on an experience when I have been asked a number of times to assist in the care of patients in which the headache did not yield to the ordinary therapeutic measures, and which presented some symptoms of meningismus. In these cases I advised lumbar puncture, and in a number of cases, just as in Dr. Sailer's case, the symptoms were greatly ameliorated. In infectious diseases we sometimes observe delirious conditions and convulsions, which are all due to a complicating meningeal irritation. In such cases, lumbar puncture gives considerable relief.

Dr. Sailer has presented an interesting subject in the illustrations of the atavistic skull. It is a matter of interest to know that we have no criminal or other types. A college professor may present sometimes the same kind of a skull as a mental defective. It is gratifying to know that appearances are not necessarily fatal.

Dr. Sailer, closing: I did not consider the case in the last tracing complete heart block at the time. We had another case in which three days before death the block was so nearly complete that it would probably have shown complete heart block had death not occurred.

E. J. G. Beardsley, Clerk.

COUNTY SOCIETY REPORTS

BLAIR—MAY

The Blair County Society met the evening of May 22, in Caums Banquet Hall, with thirty members in attendance. A banquet was served, after which Dr. Harry M. Stewart of Johnstown read a paper on "Roentgen Diagnosis of Gastro-Intestinal Lesions," which was illustrated by lantern slides, clearly bringing out the salient points emphasized in his talk.

The following is an account of one of the best meetings the secretary has had the privilege of attending, that of the Central Pennsylvania Roentgen Ray Society, held May 26, in Johnstown. The members are live wires and plenty of spirit was shown. A clinic was held at the Memorial Hospital in the morning by Dr. George P. Müller of Philadelphia, the pituitary and gastric cases being thoroughly demonstrated.

At the scientific meeting in the afternoon Dr. Russell H. Boggs of Pittsburgh reviewed the subject of "The Roentgen Diagnosis of Carcinoma of the Stomach," which was illustrated by lantern slides. Points in the summing up of malignant disease were presented and particular emphasis laid on serial roentgenograms. Early diagnosis was insisted on.

Dr. G. W. Grier of Pittsburgh, on "Nonmalignant Lesions of the Stomach from a Roentgen Standpoint," dwelt mostly on gastric ulcer, syphilis of the stomach, duodenal ulcer and gastroptosis. Many slides were shown to illustrate each point. A positive diagnosis can be made of gastric ulcer roentgenologically, as often as we make a positive diagnosis in most other medical diseases. The symptom complex includes hypermotility, pylorospasm, six-hour retention, irregular outline, and tender spot over suspected area.

Dr. J. A. Lichty of Pittsburgh on "The Diagnosis and Treatment of Peptic Ulcer," presented the medical side of gastric ulcer, taking up the pathogenesis, diagnosis, complications and treatment. The neural, infectious, toxic, and arteriosclerotic theories of pathogenicity were taken up. He presented the difference between the laboratory and "real" ulcer. In talking on the diagnosis, Dr. Lichty laid great emphasis on the properly used test meal associated with thorough gastric analysis, Roentgen ray, and anamnesis, string test not merely once but frequently. Regarding treatment he advised the alkaline method adapted to each individual case, rest, proper medication, rectal glucose feedings, taking account of pyloric need of patient in giving food, proper care for from one to three years after treatment; operation was advised only in one of the several complications.

Dr. George P. Müller of Philadelphia presented the subject of "The Surgical Treatment of Gastric Ulcer and Carcinoma of the Stomach." Results of surgical treatment of gastric ulcer are good, relieving patients of their complaints, allowing the stomach to empty itself properly, or a little faster than normally; the abdomen is practically as good after as before laparotomy. Dr. Lichty, in his talk, reported several cases of hematemesis from gastric ulcer, and the refusal of several surgeons to operate; Dr. Müller stated that one should operate before patients are in an exsanguineous condition and the results are splendid. There is in all cases a period in which medical treatment must be followed out. Proper postoperative observation and care are absolutely necessary. In carcinoma of the stomach we must get the case early before it is too far advanced. Dr. Müller described several operative procedures.

Team work between the internist, surgeon and roentgenologist was the opinion of the speakers and all those present.

The officers of the Central Pennsylvania Roentgen Ray Society for the ensuing year are: Dr. Harry M. Stewart of Johnstown, president; Dr. F. L. Schumacher of Dubois, vice president; Dr. W. E. Reiley of Clearfield, secretary-treasurer; Drs. R. H. Boggs of Pittsburgh, F. C. Smathers of Punxsutawney, and Horatio Gass of Sunbury, censors; Dr. G. D. Bliss of Altoona, reporter and editor. The next meeting will be held in Altoona in October.

Fifty-five physicians attended the banquet in the evening at the Stanwix Hotel, and after dinner speeches on "Preparedness" were given by Drs. L. F. Stewart, Free and others.

James S. Taylor,
Reporter, Blair County Society.

COLUMBIA—JUNE

The Columbia County Society met at the Central Hotel, Bloomsburg, June 14, at 12 o'clock. After dinner the society was called to order with Vice President Davis in the chair, and eighteen members and two visitors present, including Dr. J. H. Grimes of Danville, Ind.

Dr. J. W. Bruner, chairman of the Committee on Medical Preparedness, reported that the blanks in reference to medical service for the government had been filled in and returned by thirty-three physicians of the county. He also announced that Dr. C. A. E. Codman of Philadelphia would meet the members of Columbia and Montour County societies in the court house in Bloomsburg, July 14.

Action was taken by the society whereby the members of the organization who remain at home will take care of the practice of the physicians who respond to the call for the Medical Corps, and will give one third of all moneys collected to their families.

Mr. F. N. Standbridge, organizer, working in connection with the American Medical Association and the Medical Society of the State of Pennsylvania, visited the society and spoke on the character of his work in securing applications for membership in both the state and national organizations. The society cordially welcomed him and heartily endorsed his efforts.

Dr. C. B. Yost presented a practical and interesting paper on the subject of "The Mouth and Tonsils as a Factor in Disease," in which he clearly demonstrated the fact that infections of these parts, when neglected, are frequently followed by months of suffering, in many cases of a serious character. He advised the early and radical elimination or active treatment of the affections referred to. The discussion was opened by Dr. J. R. Montgomery, followed by Drs. John, Shuman, Harter, Davis, Arment and others.

Interesting and unusual cases were reported by Drs. Bruner and Hess.

L. B. Kline, Reporter.

ERIE—MARCH, APRIL, MAY

At the meeting of the Erie County Society, March 20, Dr. George W. Crile of Cleveland, Ohio, addressed the members on "Certain Borderline Problems, viz., Cholecystectomy vs. Cholecystotomy, Treatment of Gastric and Duodenal Ulcers, Relationship of the Thyroid to Exophthalmic Goiter," which was supplemented by lantern slide and moving picture demonstration. Dr. Crile, by his masterly presentation, held the closest attention of his audience, one of the most representative, and perhaps the largest gathering of medical men that has ever met at the Library Building. Out of his vast experience and personal research, Dr. Crile was able to discuss, from many points of view, the principles he wished to emphasize.

The regular monthly meeting of the Erie County Society, April 3, was open to the public, and Judge E. L. Whittelsey presided. Dr. William A. Evans, president of the American Public Health Association and professor of hygiene at the Northwestern University, Chicago, in his lecture, emphasized the fact that one of the great troubles with most communities from the standpoint of public health is that certain conditions are accepted as inevitable which are not inevitable. He deplored the high rate of infant mortality in the average city and town, and urged more liberal support of public health requirements. Community of effort should be enlisted to reduce the rate of infant mortality to the lowest possible ratio, and no municipality should rest until it had done the utmost possible in this direction. Dr. Evans paid a cordial tribute to the men engaged in preventive medicine and to their accomplishments in that all-important pursuit. Dr. Peter H. Boyce, chief medical officer of the Department of Immigration of the Dominion of Canada, confined himself to a discussion of the conservation of child life, and to the already splendid results which have been achieved in that direction. His exposition of the essentials of prenatal and postnatal care of both mother and child was comprehensive and educational in the highest degree.

"Head Injuries, With and Without Fractures," was the title of an address to the Erie County Society, May 1, by Dr. James W. Putnam, professor of neurology at the University of Buffalo. In his preliminary remarks he discussed the necessity for prompt interference at time of birth, but undue and prolonged pressure on the fetal skull results disastrously. "Neglected presentations" and failure to resort promptly and intelligently to forceps have caused much distress and suffering to the child later in life. The speaker cited statistics in support of his statement that prolonged labor more than the use of the forceps is the cause of much of the cerebral irritation with which the neurologist comes in contact, epilepsy resulting often from trauma without hemorrhage. In connection with actual trauma later in life, the speaker defined and described "retrograde amnesia," wherein all memory of time, place and persons, for a longer or shorter period of time prior to the accident, is lost. Several medicolegal cases of more than local interest were reviewed in reference to this feature. Cases in which intense localized pain followed head injuries were described, the cause being a slowly developing osteitis. Surgical interference by removal of the diseased portion of bone, gave almost instant relief in many cases. The speaker also emphasized his belief in the comparative rarity of traumatic insanity, and when it does occur, it is of no special type.

T. M. M. Flynn, Reporter.

LEBANON—MAY

The Lebanon County Society met, May 8, in the Good Samaritan Hospital, Dr. W. H. Brubaker presiding and a large number present. Dr. D. M. Rank read a paper on "Diabetes Mellitus." After giving a history of the disease he discussed the three types, pancreatic, alimentary and nervous. In giving cause for the first type he quoted Opie's theory that the islands of Langerhans had undergone degeneration. The alimentary type is caused by some disorder of the digestive system producing an interference in the carbohydrate metabolism. He also called attention to the fact that in exophthalmic goiter and alcoholism this condition may also occur. The nervous type occurs in various diseases of the central nervous system, e. g., tumors in the fourth ventricle, and acromegaly. Just how these lesions give such results is one of the unsolved problems in medicine. The outstanding symptoms most common to the average physician are polyuria with sweetened odor and taste to urine and high specific gravity, dry skin, polydipsia, vomiting, constipation and polyphagia. Furunculosis is not uncommon and coma is a serious symptom sometimes seen. Dr. Rank believes that the prognosis is better if the patient is in middle or late life.

In outlining the treatment he urged that, at once, the type of diabetes present be determined, and the diet being so important he discussed that first. As a general rule all starchy and saccharine foods should be eliminated, while such foods as celery, lettuce, cabbage, bran bread and almond meal can be taken safely. Hygiene plays a large part in the treatment, and regular exercises and fresh air are urged. Massage in some cases is good. The medicinal treatment, Dr. Rank said, is purely empirical, and the drugs that he has found the best are opium, bromids, arsenic, the alkalies and salicylic acid, all of which are given in doses regulated by the case in hand as no two cases are alike. For the coma he suggests intravenous injection of 0.9 per cent. sodium chlorid solution at 112 F. In all cases avoid overdrugging. After the patient is seemingly cured, frequent urinalyses are to be made and the patient closely watched.

The members then adjourned to the chemical laboratory where specimens of diabetic urine were examined by Dr. J. D. Kerr. The new Roentgen-ray machine was demonstrated, several pictures being taken and fluoroscopy exhibited.

George R. Pretz, Reporter.

SOMERSET—MAY

The Somerset County Society met at Rockwood, May 15. A resolution was offered to amend the bylaws, requiring that a member must attend at least two meetings out of the six during the year or forfeit membership. Some of the members have not been present in three years; others have attended one or two meetings in that time. These members have paid their dues but they have done little or nothing more for all the benefits of membership. There was only one dissenting vote on the resolution, and that came from a member who is always on hand if it is at all possible; he thought we should be charitable to our fellow members.

Dr. I. C. Miller read a paper on "Cerebrospinal Meningitis," in which he gave his experience in the serum treatment of the disease. Dr. G. W. Smeltz read a paper on "Mechanism of Symptom Formation in the Neuroses," in which he showed that we must frequently look beyond the physical and into the psychological state to find the cause of the trouble, failure to do which will result in failure to give relief.

The next meeting will be held at Boswell. Councilor J. B. Lowman of Johnstown is expected to be present and a good meeting is anticipated.

H. C. McKinley, Reporter.

WAYNE—MAY

The annual meeting and banquet of the Wayne County Society was held at Farview State Hospital, May 15. In attendance and interest it was one of the best meetings of the society. Dr. S. D. Molyneux of Sayre addressed the members on "The Clinical Significance of Abdominal Pain." Caution against the too common practice of a diagnosis and treatment of "indigestion" was impressed on his hearers. Dr. Arthur Simons of Sterling and Dr. F. L. Van Sickle of Olyphant discussed the paper, emphasizing its many valuable features.

The society is indebted to the Board of Managers and Drs. Krauss and Gill for the courtesy and use of the buildings, as well as the banquet provided. Officers for the ensuing year were elected.

NECROLOGY

IN MEMORIAM—Dunham E. Ash, M.D.

(Resolution adopted by the McKean County Medical Society, June 19, 1917.)

Whereas, Dr. Dunham E. Ash died on the twentieth day of April, 1917, after having been engaged in active practice of medicine for twenty-nine years; be it

Resolved, That in the death of Dr. Ash the community loses a valuable servant who gave much of his time to municipal affairs; the people of Bradford lose a cheerful, wholesome and sincere medical adviser, and this society loses a member whose good judgment and ready wit during many years has enlivened its meetings and guided its activities.

IN MEMORIAM—William P. Burdick, M.D.

(Resolution adopted by the McKean County Medical Society, June 19, 1917.)

Whereas, This society has lost in the death of Dr. William P. Burdick one of its past presidents and its present representative in the Medical Society of the State of Pennsylvania; be it

Resolved, That in the death of Dr. Burdick this society loses a valued member whose accomplishments in the arts and sciences as well as the charm of his most pleasing personality won for him a place in the esteem and affections of his associates who deplore his early death and make this formal tribute to his memory.

IN MEMORIAM—A. Miner Straight, M.D.

(Resolution adopted by the McKean County Medical Society, June 19, 1917.)

Whereas, The late Dr. A. M. Straight has been a member of this society for nearly thirty-two years and has been censor for the state society in this district since that office was created and during this time has consistently manifested an active interest in all professional and social affairs of this society; therefore, be it

Resolved, That this society testify that in the death of Dr. Straight this society loses one of its most conspicuous members, a physician who lived and worked conscientiously and diligently, who appreciated and abided by the ethics of his profession, who ever strove to improve the profession in all details of public service and governed himself religiously in all things with regard to this world and the next.

IN MEMORIAM—James H. Montgomery, M.D.

(Resolution adopted by the Erie County Medical Society, June 29, 1917.)

The Erie County Medical Society resolves that in the death of our president, Dr. James H. Montgomery, our society has sustained the loss of a valued counselor; our profession an able surgeon and efficient medical adviser; and our city and country, a true patriot.

To his family we extend our sincere sympathy, while we ourselves deeply mourn the loss of one whose ability was an inspiration to all who knew him.

J. E. Silliman,
F. A. Walsh,
Ira J. Dunn,
David Dennis,
John W. Wright,
Committee on Resolutions.

THE TRUTH ABOUT MEDICINES

NEW AND NONOFFICIAL REMEDIES

Since publication of New and Nonofficial Remedies, 1917, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies":

Kephalin-Armour. — The hemostatic phosphatid obtained from spinal cord and brain tissue of mammals. It is essentially the same as Brain Lipoid, N. N. R. For a discussion of the actions and uses see New and Nonofficial Remedies, 1917, p. 124, under "Fibrin Ferments and Thromboplastic Substances (Kephalin)." Kephalin-Armour is applied freely to bleeding or oozing surfaces in 1 to 2 per cent. suspensions in physiological sodium chlorid solution. Armour and Co., Chicago (*Jour. A. M. A.*, June 2, 1917, p. 1625).

Thorium Nitrate.—A white substance, very soluble in water and alcohol. Soluble thorium salts resemble alum in their local astringent and irritant properties. They are not absorbed from the alimentary canal. The nonprecipitant double salts of thorium are practically nontoxic, even intravenously. Thorium salts are fairly radioactive.

Thorium Sodium Citrate Solution.—Prepared by dissolving thorium nitrate, 10 Gm., and sodium citrate, 15 Gm., in water, neutralizing with sodium hydroxide and diluting to 100 Cc. Being impervious to Roentgen rays, the solution is used to obtain cystograms of the renal pelvis and urinary bladder.

Thorium Solution for Pyelography-H. W. and D., 10 Per Cent.—It is the same as thorium citrate solution. Prepared by Hynson, Westcott and Dunning, Baltimore.

Stronger Thorium Sodium Citrate Solution.—Prepared by dissolving thorium nitrate, 15 Gm., sodium citrate, 22.5 Gm., in water, neutralizing with sodium hydroxide, and diluting to 100 Cc. It is used for obtaining urethral pyelograms.

Thorium Solution for Pyelography-H. W. and D., 18 Per Cent.—It is the same as thorium citrate solution. Prepared by Hynson, Westcott and Dunning, Baltimore (*Jour. A. M. A.*, June 16, 1917, p. 1817).

Betanaphthol Benzoate - Anthony - Hammond Chemical Works, Inc.—A brand of betanaphthol benzoate which complies with the N. N. R. standards for this drug. Anthony-Hammond Chemical Works, Inc., New York City.

Calcium Cacodylate.—The calcium salt of cacodylic acid containing from 43.5 to 48 per cent. of arsenic in the form of cacodylic acid and free from arsenite, arsenate and monomethylarsanate. It has the mild arsenic action of cacodylates. Calcium cacodylate is white, almost odorless, and very soluble in water.

Ampule Calcium Cacodylate Solution-Mulford.—Each ampule contains calcium cacodylate, 0.045 Gm. in 1 Cc. The H. K. Mulford Co., Philadelphia.

Chlorazene Surgical Cream.—It contains chlorazene, 1 Gm., in 100 Gm. of a base composed of sodium stearate, 15 per cent., and water, 85 per cent. The Abbott Laboratories, Chicago.

Borcherdt's Malt Extract with Cod Liver Oil.—A liquid composed of cod liver oil, 20 per cent., and Borcherdt's Malt Extract Plain, 80 per cent. The Borcherdt Malt Extract Co., Chicago.

Borcherdt's Malt Extract with Creosote. — 100 Cc. contain beechwood creosote, 4 minims per fluidounce, in Borcherdt's Malt Extract Plain. The Borcherdt Malt Extract Co., Chicago.

Borcherdt's Malt Extract with Cascara Sagrada.—100 Cc. contain cascara sagrada, 60 grains per fluidounce in Borcherdt's Malt Extract Plain. The Borcherdt Malt Extract Co., Chicago (*Jour. A. M. A.*, June 23, 1917, p. 1911).

Lipoiodine-Ciba.—The ethyl ester of iodobrassidic acid containing 41 per cent. of iodin. Lipoiodine-Ciba is odorless, tasteless, insoluble in water but very soluble in fatty oils. When administered, it is absorbed almost completely and excreted more slowly than inorganic iodids but more rapidly than with other iodized fats. It is said to be less likely to produce gastric irritation than ordinary iodids. It is supplied only in the form of Tablets Lipoiodine-Ciba, 0.3 Gm. A. Klipstein and Company, New York (*Jour. A. M. A.*, June 30, 1917, p. 1985).

PROPAGANDA FOR REFORM

Some Misbranded Cough Remedies.—The following "cough remedies" have been declared misbranded under the U. S. Food and Drugs Act, chiefly because the curative claims made for them were found to be false and fraudulent: Barker's Remedy for Catarrh, Coughs, Colds and Rheumatism is essentially sugar and water with a small amount of cubebs, potassium iodid and creosote.——Mathieu's Cough Syrup, formerly called Syrup of Tar and Cod-Liver Oil, containing little, if any, tar and no cod-liver oil, but containing alcohol, chloroform, creosote and menthol.——Forrest's Juniper Tar, containing alcohol, petroleum and oil of tar.——Terraline Plain, found to be simply liquid petrolatum.——Tarraline with Heroin, found to be liquid petrolatum with heroin.——Classe's Cough Syrup, a syrup containing alcohol, glycerin, tolu and wild cherry, and having an odor of tar.——Essence Menthol-Laxene, containing alcohol, menthol, ammonium salts, chlorid, sugar, drug extract and an unidentified alkaloid.——Brown's Acacian Balsam, containing alcohol, acacia, nitrate, licorice, meconic acid, tartrates, reducing sugar, sodium and potassium compounds.——Sykes' Sure Cure for Catarrh, containing potassium chlorate, ammonium chlorid and small amounts of alcohol, hydrastin and methyl salicylate.——Warner's White Wine of Tar Syrup, containing opium and alcohol, no tar and but an insignificant amount of wine. Rawleigh's Golden Cough Syrup, containing alcohol, chloroform, menthol, guaiacol and perhaps horehound.——Rawleigh's Ru-Mex-Ol, containing 26.5 per cent. alcohol and vegetable matter in which rhubarb was indicated.——Gooch's Mexican Syrup of Wild Cherry, Tar, etc., containing morphin and alcohol, sugar, glycerin, methyl salicylate and benzaldehyde as flavor, and small amounts of tar and cherry (*Jour. A. M. A.*, June 16, 1917, p. 1863).

Flavored Epsom Salt.—When a physician prescribes a dose of Epsom Salt to be taken in one of the official aromatic waters, he does not create a new invention. Yet the U. S. Patent Office has granted a patent for the "discovery" of a method for flavoring Epsom salt (*Jour. A. M. A.*, June 23, 1917, p. 1914).

Brom-I-Phos. — The Council on Pharmacy and Chemistry reports that Brom-I-Phos (The National Drug Co.) is not eligible for admission to New and Nonofficial Remedies. The label declared the preparation to contain iodin, bromin and phosphorus in an aromatic base. The A. M. A. Chemical Laboratory found that Brom-I-Phos contained no free iodin, no free bromin and no elementary phosphorus; instead it appeared to be an alcoholic preparation containing iodid, bromid and a little phosphate. The Council rejected Brom-I-Phos because the statement of composition was unsatisfactory and misleading; because the therapeutic claims were exaggerated, and because the combination of bromin, iodin and phosphorus, or of bromid, iodid and phosphate is irrational (*Jour. A. M. A.*, June 30, 1917, p. 2001).

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ORIGINAL ARTICLES

BILATERAL METASTATIC PANOPHTHALMITIS FOLLOWING PNEUMONIA, WITH FATAL ISSUE *

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My object in presenting this paper is primarily to develop the true picture of the condition existing in this group of cases and thereby arrive at a correct diagnosis. Several terms are used in the literature describing this class of cases, but with entirely different meanings. For instance, one writer reports a case which he diagnosed as metastatic ophthalmia and then describes as sympathetic choroiditis. Pitfield describes a case as double metastatic panophthalmitis which apparently was thrombosis of the cavernous sinus. I will refer to this phase of the matter later.

In the early stages it may be difficult to make an exact diagnosis. Subsequent developments may change the entire aspect. In the case to be here reported the diagnosis of panophthalmitis was not made until the sixth day.

The patient, a woman 45 years of age, was admitted to the hospital with a temperature of 102 F. A diagnosis of ambulatory lobar pneumonia was made by the medical chief. Her temperature fell gradually by lysis and on the seventh day was normal, where it remained for two days and then rose rapidly. On the twelfth day she had a chill followed by profuse perspiration. These chills and sweats continued at more or less regular intervals until her death. Two days after the first chill she complained of pain in the right eye. Four days later she was seen by one of my colleagues who made the following observations: Tension plus 2. Anterior scleral veins dilated. Moderate amount of pericorneal injection. Cornea, general haziness, pupil irregular 2.5 mm., completely bound down to anterior capsule of lens. Pupil filled in with exudate, anterior chamber shallow. Light perception questionable. He made no diagnosis but suspected iritis complicated by glaucoma.

I saw her two days later when there was no doubt that the eye contained pus.

Under hyoscin, morphin and cactin anesthesia a free incision was made, the lens was expelled with the vitreous which was thin and mixed with pus. Cultures and smears showed pneumococci and streptococci.

The pain in the eye was relieved and the swelling decreased somewhat. The eye continued to drain for two days, and then showed some signs of quieting down. On the fourth day after the operation the other eye showed signs of irritation. The anterior vessels were dilated and the pupillary reactions were sluggish. The following day a mass appeared in the vitreous. This increased in size rapidly, the intraocular tension went up and the patient died the next day. Necropsy could not be obtained.

A blood examination made just before the onset of the ophthalmitis showed hemoglobin, 80 per cent.; erythrocytes, 4,600,000; leukocytes, 35,000. On examination the day before she died a slight increase in the leukocytes was found; polymorphonuclears, 90 per cent.

Several days previous to the onset of the inflammatory symptoms the patient's general condition was poor. She reacted very poorly to all stimulation, and exhibited no signs of any recuperative powers.

The question of anaphylaxis enters for our consideration at this point. She had been given bacterins five days previous to the onset in the first eye. These were repeated every thirty-six hours. Her general condition seemed to decline more rapidly after the second or third injection. Much has been said of anaphylaxis, but I had never seen such a condition and I have used bacterins extensively. The success or failure of bacterin therapy depends on the manner of administration and their proper selection for the individual case. In our patient I would have preferred a serum to a bacterin — as I believe her immunity-producing powers had reached their limit. Just what part the bacterins played in this case is a question unanswered in my mind.

In the literature of the last ten years sixty cases have been recorded.

Of these, the streptococcus was the chief etiologic factor, pneumococcus second, and epidemic cerebrospinal meningitis third. *Staphylococci, Bacillus coli, Bacillus typhosus* and *Bacillus influenzæ* have been recorded as etiologic factors. Mixed infections were frequent and more virulent than simple infections.

Two paths of entrance to the ocular tissues are mentioned by different reporters: (1) by way of the blood vessels, (2) by way of the optic nerve sheath. Entrance by the vascular system obtains in most instances. It is possible that in cerebrospinal meningitis the infecting organism may travel directly into the ocular structures by way of the nerve sheath.

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* Read before the Section on Eye, Ear, Nose and Throat Diseases of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 19, 1916.

The mortality was extremely high in certain types. Following puerperal pyemia in 60 per cent. of the unilateral and 90 to 95 per cent. of the bilateral cases the patients died. In streptococcic, pneumococcic and staphylococcic infection the mortality runs up to 35 per cent. in unilateral and 80 per cent. in bilateral cases.

In almost every case reported where there was mixed infection death resulted either before the second eye was involved or shortly after. In those cases of metastatic panophthalmitis in which the patients recovered, the percentage of loss of vision was of course very high.

In considering the mortality and statistics a clear definition and understanding as to the use of terms would avoid confusion and give a clearer understanding. Ophthalmia, ophthalmitis, panophthalmia, panophthalmitis are used as synonymous terms. There should be a distinction. When the prefix "pan" is used it should be confined to those cases in which all the structures of the eye are involved and pus is present. This has been the custom adopted by most authorities.

The terms ophthalmia and ophthalmitis are misleading and not at all definite. Dorland's dictionary in the seventh edition uses them as synonyms. Sympathetic and metastatic should certainly be differentiated.

Until we come to a correct understanding as to the use of these terms we have no standard of comparison.

TREATMENT

The most important phase of the treatment of panophthalmitis is certainly prophylaxis and lies to a large extent with the family physician. At the stage in which the oculist is called, bacterins will be of small value. I would prefer a suitable serobacterin given intravenously in one large dose. A specific serum if obtainable could probably be used with better results. Intravenous injections of weak formalin solution as used by Robertson in pneumonia may give some aid, although I have had no personal experience with it in metastatic panophthalmitis. As to operative measures a free incision is preferred to enucleation. The choice of an anesthetic with this class of patients is important. In this patient hyoscin, morphin, and cactin, given hypodermatically, gave excellent anesthesia. I would hesitate to use it in children, however. I find nothing as to anesthetics in the literature and very little as to treatment, very likely because there is little to say about it.

CONCLUSION

Metastatic panophthalmitis may be caused by any of the pyogenic organisms, the cocci being the chief offenders. A low resistance is a strong predisposing factor.

A more definite use of terms descriptive of the actual condition existing should be adopted and adhered to.

The development of metastatic panophthalmitis following any pyongenic infection is a grave condition and offers a decidedly poor prognosis. The most effective treatment is prophylaxis.

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DISCUSSION

Dr. Wendell Reber, Philadelphia: One of the most important features of Dr. Lawrence's paper is the insistence on a correct terminology in designating the various conditions that simulate metastatic panophthalmitis. There has been great laxity in this direction. Sympathetic ophthalmia, for instance, should be in no wise confused with the above picture as it is a separate clinical complex.

Metastatic choroiditis (or if one prefers it, embolic choroiditis) is usually the primary condition. The process may not extend itself much beyond this point, as is seen in the metastatic choroiditis found with epidemic cerebrospinal meningitis. If the process goes on to involvement of all the ocular tissues, panophthalmitis ensues as is seen most frequently in puerperal septicemia, and less frequently with pneumonia or following tonsillitis or otitis media purulenta.

As Poulard has pointed out, almost all endogenous affections of the eyeball are nothing else than metastatic localizations in the eye of generalized infections transmitted to the eye by way of the general circulation.

Embolism of one or more choroidal vessels probably occurs more frequently than is recognized. The dozen or more short ciliary arteries that pierce the sclera anastomose freely when they reach the choroid. The emboli which produce metastatic panophthalmitis are as a rule of capillary character. The bacteria concerned are streptococcus (which Fuchs claims is the most common), more rarely the staphylococcus, the pneumococcus, the meningococcus and other bacteria. The possibility of a metastasis from the accessory sinuses, while remote, must not be overlooked. The large plexus of veins in the apex of the orbit back of the eye is in communication with the veins of the sinuses by way of the nasal vein. They are also in communication with the posterior ciliary veins. Moreover this whole plexus of veins is without valves so that transmission of a pneumococcic focus by this route must be borne in mind. According to Roemer, more than one third of all cases of metastatic panophthalmitis present an ulcerative endocarditis. The prognostic significance of a double metastatic panophthalmitis is grave indeed.

As to treatment I quite agree with Dr. Lawrence in the use of sensitized serobacterins. Besredka and Metchnikoff suggested the plan of injecting a vaccine composed of living bacteria that have been immersed in their specific immune serum, or in other words that have been "sensitized." They contend that such "sensitized serobacterins" produce practically no negative phase, but only slight local and general reaction. According to Kolmer, this principle is supported by the observations of Theobald Smith.

On the other hand it cannot be too much emphasized that a properly prepared vaccine is a potent substance (foreign protein) capable when given in excessive dosage, or when otherwise injudiciously administered, of doing much harm. A vaccine stimulates body cells. Unless the cell can withstand the stimulation the administration of vaccine may do actual harm. This is the strongest reason why vaccines should be used very carefully, if at all, says Kolmer, in the treatment of severe generalized infections. There can be no doubt but that in Dr. Lawrence's case there was a profound generalized infection, a pneumo-septico-pyemia. Tincture of the chlorid of iron in heavy doses, with calomel, quinin and strychnin, would seem to be plainly indicated in such cases, as the danger from anaphylaxis or overwhelming the organism with the foreign protein in the vaccine seems to be especially great in such cases.

Dr. John F. Culp, Harrisburg: Dr. Lawrence may have spoken about examination of the ears, but if he did I entirely overlooked it. I should like to know whether any examination of the middle ear was made, with the thought that possibly the lateral sinus might be involved. A number of years ago, I saw a case that began as pneumonia and terminated fatally, in which the middle ear became involved. It is true that a postmortem examination was not made, but I am satisfied that there was involvement of the lateral sinus, and I thought that the infection had come by the way of the lateral sinus. If such an examination was not made in Dr. Lawrence's case, this may in a measure explain the way in which this supposedly metastatic condition took place.

Dr. E B. Heckel, Pittsburgh: I want to emphasize the stress laid on the matter of nomenclature by Dr. Lawrence. That is a very important thing. We are frequently rather loose in our terminology, and an occasional reminder of this is a good thing.

As to the method of infection, it is very likely through the blood stream, but I cannot quite conceive how it could be through the venous system, in which the current is always from the eye and back toward the cavernous sinus, and other large veins could carry infective material to the eyeball. For instance, in thrombosis of the cavernous sinus, in which the orbits become enlarged and the eyeballs protrude, we do not have any panophthalmitis; so the infective material probably comes through the arterial, rather than the venous system.

I am in accord with what the author and Dr. Reber have said about vaccines, if autogenous vaccines can be obtained, they are always preferable.

In regard to surgical procedure, when a panophthalmitis is established, you have an abscess, and the matter of anesthesia can often be eliminated by using a sharp knife, such as a cataract knife, and opening the abscess just as you would an abscess anywhere else. It produces practically no pain and no shock to the patient. You relieve the tension. The abscess empties itself and keeps on emptying itself, and this affords relief.

Dr. Lawrence, closing: The method of giving the vaccine intravenously has been employed only a short time, but I feel that it is a good thing. I have not had sufficient experience with this method, as yet, to say much concerning it. Continuing the hypodermic injection of vaccines over a long period of time, I think, is a mistake. If one does not get the effect from the treatment early, I do not believe that any benefit will be derived. We prefer a large dose in the beginning. If we get no effect, we do not continue over an indefinite period.

The ears were not examined in this case. There were no symptoms of middle-ear involvement. Such an examination might have given some information, but it was not asked for.

The picture that Pitfield has described is evidently thrombosis of the cavernous sinus.

LIGATION OF THE SUPERIOR POLE OF THE THYMUS IN OPERATING FOR GOITER*

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From the many reports of surgeons doing thyroidectomy and ligation of the thyroid vessels for toxic and exophthalmic goiter one learns that about 30 per cent. of these cases are either not entirely cured or are not helped in any way. These cases that are not helped make from 5 to 10 per cent. of the whole, and are in part explained by permanent degeneration of the heart. The trend of current surgical literature leads one to a serious consideration of the thymus among other things as a factor in these cases not cured by operation.

Capelle,[1] after compiling statistics on a large number of autopsies of cases of exophthalmic goiter, found that 44 per cent. of the patients who died of an intercurrent illness, 82 per cent. of those who died of the disease itself, and 95 per cent. of those who died of a postoperative arrest of the heart's activity, had enlarged thymus glands. Discussion of the question by Klose, Bircher, Hart, Bayer, Kocher,[2] von Haberer and others, carries one from the radical conclusion of Capelle to that of Albert Kocher, who stated that at Berne participation of the thymus in goiter was found only in very rare cases. A comparison of the work of these men with our work in this country makes the following conclusions seem reasonable: (1) There are cases of Basedow's disease in which the thyroid gland alone is responsible. (2) There are cases in which the thyroid and thymus glands are responsible. (3) There is not yet sufficient evidence on which to base the assumption that the thymus alone can be responsible for exophthalmic or toxic goiter.

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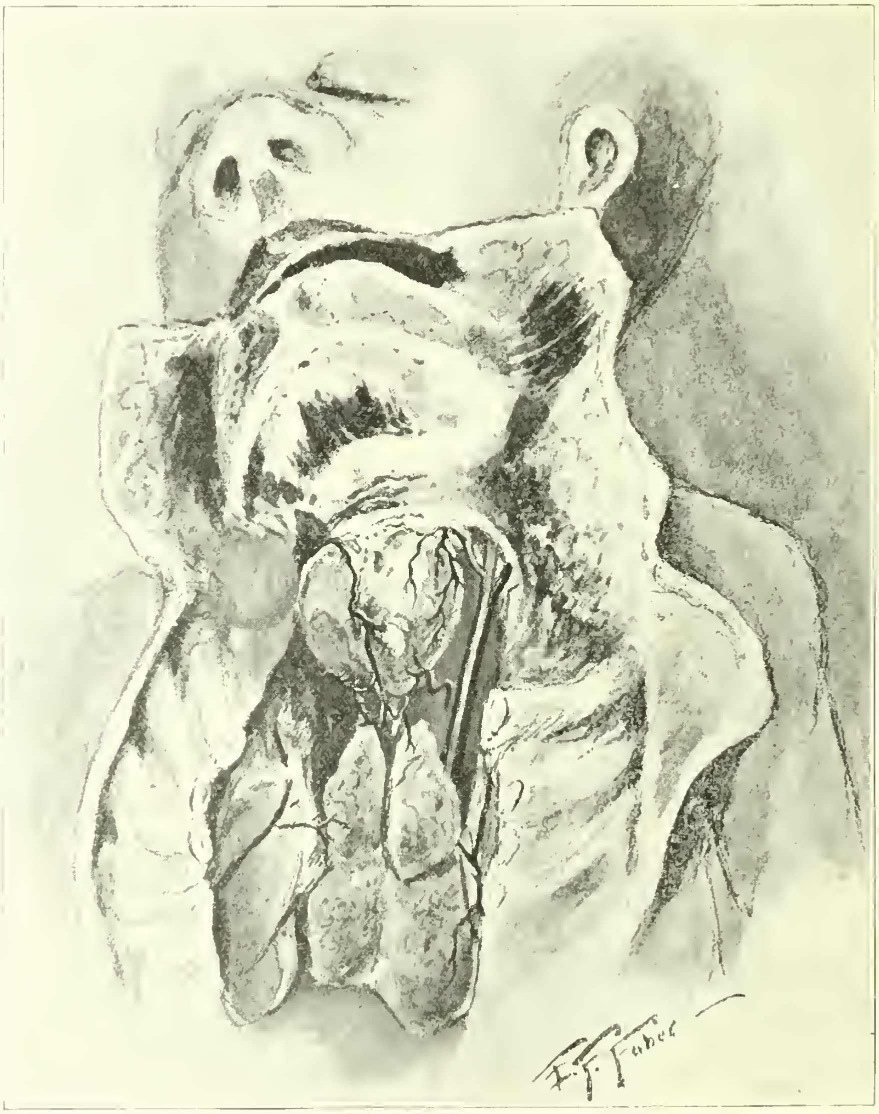
* Read before the Section on Surgery of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 19, 1916.

[1] Capelle: Klose, Chirurgie der Thymusdrüse, 1912.

[2] Kocher, A.: Basedowsche Krankheit und Thymus, Archiv. f. klin. Chir., 1914, cv, 924.



The illustration, taken from an original dissection shows the arteries to the superior pole of the thymus coming from the inferior thyroid arteries. The branches from the inferior thyroid arteries to the thyroid show how, in endeavoring to remove the capsule from the gland and ligate close to the gland, the main trunk is left undisturbed. The artery descending to between the two poles of the thymus is an anomalous branch of the right superior thyroid artery. The point of election for ligation of the inferior thyroid artery is seen where the artery emerges from behind the left carotid artery.

In the Laboratories of Experimental Surgery of the University of Pennsylvania, while doing some work (which will appear in detail at a later date) on the ductless glands of dogs, I frequently noted, in doing autopsies on those cases in which I had done thyroidectomies, that the thymus gland was enlarged and blue. Microscopically, it was congested. At about this time Crotti[3] reported three cases of death due to enlargement of the thymus following operation for goiter. In one of these cases the thymus was blue (congested). L. Rehn,[4] in quoting Gluck and Dwornitschenko to the effect that passive congestion of the thymus and death had followed tying off of the arteries or veins at the lower pole of the thyroid during thyroidectomy, said he had experienced the same thing. These things led me into a study of the vasculature of the superior pole of the thymus in particular, on account of its proximity to the lower pole of the thyroid. Our textbooks of anatomy do not give us any idea of the location of the vessels to the thymus. Ten dissections which I shall present in detail at another time showed me: (1) In the majority of cases the inferior thyroid arteries give branches to the superior poles of the thymus, dropping directly to them from a point several millimeters internal to the normal external limit of the thyroid lobe. (2) In some instances a branch is given on but one side; under these circumstances the left side is more frequently the contributor. (3) Probably in one of ten cases the inferior thyroid artery gives no branch to the thymus. (4) Ligation of the inferior thyroid artery close to the gland does not touch its branch to the thymus. (5) Enlargement of the thymus can partially obstruct its returning blood. (See illustration.)

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[3] Crotti: Thymic Tracheostenosis and Thymus Death, with Report of Cases. Jour. Am. Med. Assn., 1913, lx, 571.

[4] Rehn, L.: Archiv. f. klin. Med., 1906, lxxx, 468.

A careful consideration of these findings shows that if thyroid lobectomy is done by ligating the branches of the inferior thyroid artery close to the gland as is usually done, though Kocher and a few others recommend ligation of the trunk of the inferior thyroid artery also, the vessel going to the thymus is still permitted to supply it and allow it to receive its share of the slight temporary compensatory rise in systemic blood pressure that results from ligation of any moderate sized blood vessel. Further, the thymus artery is the only functionating one left on this trunk. That the rise of pressure is barely appreciable and at first sight of little consequence, I have found experimentally by making kymographic tracings with the help of Dr. J. E. Sweet; but practically I have shown, in four out of ten experiments on dogs, that ligation of all vessels on the trunk that gives the thymus artery, and leaving this artery undisturbed, thus duplicating the condition mentioned above, caused an enlarged, congested thymus. The most logical explanation of these four cases is that the increase in blood pressure attending the ligation caused the thymus to enlarge and press against the firm and resisting sternum anteriorly and spine posteriorly. This pressure obstructed the veins of the thymus which emerge posteriorly to empty into the innominate veins, and thus a vicious circle was established that resulted in an engorged thymus such as Crotti, Rehn, Gluck and Dwornitschenko have seen.

Ligation of the superior pole of the thymus should avoid this congestion and in addition have the favorable influence, in case the thymus is participating in the disease, that pole ligation of the thyroid has. Ligation of the superior pole of the thymus is accomplished by ligating the inferior thyroid artery behind the carotid sheath. There at one stroke the inferior blood supply to the thyroid and the superior blood supply to the thymus is arrested. The pulsating inferior thyroid artery is found behind the carotid sheath just below or inferior to the carotid tubercle of the sixth cervical vertebra.

Since making this study I have followed this procedure clinically in fourteen thyroid lobectomies. In all of them I searched for thymus tissue; in two I found small thymus glands and, on account of easy access, I removed them. How many thymus glands I overlooked I do not know, as I feel one cannot be sure without making extensive search, and this involves considerable risk. However, those not actually seen and dealt with I feel were properly attended to by the type of vessel ligation. In some where the lobes were small, ligation of the inferior thyroid artery was done before the lobectomy. It made the operation easier and less blood was lost. Where the lobes were large the inferior thyroid artery was reached (behind the carotid sheath) with greater ease after first doing lobectomy.

As to the results in these fourteen cases, all of them have recovered completely or progressed toward recovery as far as the time since operation permits me to expect. There were no complications except slight wound infection in two instances. This limited number of cases can be taken as reasonable support of the theories on which I base the justification of the procedure. So long as lobectomy is done in this way and no vascular or toxic thymus difficulties are encountered, it should stand as a superior form of procedure. From the point of view of after-treatment and worry, and I believe mortality, the suggested procedure in every one of the fourteen cases gave very positive evidence of its efficacy in reducing postoperative hemorrhage to practically nothing, and eliminating postoperative chest pain. The former is readily explained by the fact that the thyroid rarely gets blood from vessels other than the superior and inferior thyroid vessels, and by dealing with the superior thyroid artery in the usual way, and the inferior thyroid artery in the way I have described, there is little opportunity for postoperative bleeding from raw surfaces. The latter observation can be explained by a reduction in the amount of blood reaching the thoracic cavity when ligation is done as I have suggested. But relatively speaking, this explanation does not seem too reasonable.

In concluding, I would advocate ligation of the inferior thyroid artery behind the carotid sheath in preference to ligation of the superior thyroid artery in those cases more suited to vessel ligation than lobectomy. For here we have diminution in blood supply to two toxic glands instead of one, and in addition we have a field prepared that gives us little to fear from hemorrhage, thymus vascular trouble or chest pain, if the patient later comes to lobectomy.

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DISCUSSION

Dr. Donald Guthrie, Sayre: This paper of Dr. Stewart opens up a new line of thought. I think you have all been troubled after thyroidectomy, when both inferior thyroid arteries have been ligated, by pressure symptoms on the first and second day after operation, pressure symptoms which cannot be explained by trachitis or hemorrhage. It is my belief that some of these patients are sufferers from an engorged postoperative thymus. The relation between the thyroid and thymus in the embryo is well known. The persistence of the thymus in adults is more frequent than was formerly supposed. We have all seen cases of enlarged and persistent thymus in children terminating fatally. Mayo believes all persons under 30 years of age that develop exophthalmic goiter have an enlarged thymus also; this is a large percentage of cases when we consider practically all cases of exophthalmic goiter develop before 30 years of age.

I cannot agree with Dr. Stewart—ruling out 10 per cent. of cases in which permanent damage has occurred in circulation as the result of hyperthyroidism, that 20 per cent. ligations are failures. This does not correspond with my experience and that of other men whose work I have followed.

Preliminary ligation of the superior pole is a valuable aid in attacking hyperthyroidism. It should be employed in four types of cases, and is always done under local anesthesia. First, in attacking very mild hyperplastic glands; second, to estimate the tolerance of the patient to withstand thyroidectomy; third, in severe cases of hyperthyroidism as a preliminary for a later thyroidectomy; fourth, in moderately severe cases in which double ligation may cure the condition.

I have under observation a dozen women who are perfectly well after double ligation, that I thought at first would have to have thyroidectomy later on. If surgeons accepted at once every case for radical treatment that come to them without regard for the stage of intoxication, or of the physical condition of the patient, the mortality instead of being from 1 to 2 per cent. would be practically 10 per cent.

Dr. J. Leon Herman, Philadelphia: My interest in the blood supply of the thymus was first stimulated by Dr. Stewart in a discussion of the problem with which he has so ably dealt today. Since that time I have been enabled with the kind assistance of students in the dissecting room of the University of Pennsylvania to observe the blood vascular supply of the thyroid and thymus in a considerable number of bodies. These observations lead to the conclusion that the question of thymic vascularization by means of branches from the inferior thyroid arteries is of greater academic than practical interest. This opinion which is based on dissecting room findings does not offer any proof that the individual with a goiter has a similar source of blood supply to the thymus.

The thyroid and thymus glands have a common origin from the entoblastic lining of the primitive pharynx and at an early developmental stage lie in close relationship in the neck. At this time the two organs have a common blood supply since it is a general rule that structures are vascularized by vessels lying adjacent to them. This is seen in cases of horseshoe kidney which occupy a low abdominal position and receive anomalous renal arteries from the large pelvic vessels. During the developmental period the thymus gland is the recipient of an important branch of supply from the inferior thyroid artery. With the descent of the gland into the superior mediastinum this branch becomes obliterated or so attenuated that it can serve little or no functional purpose in the adult. In the latter the major part of the blood supply to the thymus is derived from the internal mammary arteries through branches that arise at points opposite the sternoclavicular articulations.

It is conceivable that the primitive condition may be retained when failure in the descent of the gland has occurred and that therefore in cervical thymus one might expect to find the inferior thyroid artery serving as the main source of supply to the organ. This is an interesting anatomical problem that remains to be solved. There are, however, certain well recognized advantages to extracapsular ligation of the inferior thyroid arteries in goiter surgery and this particular advantage to which Dr. Stewart calls attention may perhaps serve as an additional reason for its more frequent employment.

Dr. Granville T. Matlack, Wilkes-Barre: Dr. Stewart has presented us with a most interesting subject, and one in which the literature gives diversity of views with regard to the significance of thymic hyperplasia in association with goiter. It is well established by some I believe that the coexistence of these two conditions is quite frequent but the cause of the thymic enlargement and its influence on the course of the disease of the thyroid are far from having been scientifically demonstrated. Assuming the frequent coexistence of thymic hyperplasia with goiter, the statistics of mortality, cure and relief following operations on the thyroid do not seem to support the important rôle ascribed to simple enlargement of the thymus gland. In our operations on the thyroid gland it is rarely that we see an enlarged thymus, and we are looking for it in nearly every case. We have resected and removed several thymus glands, but none of these were associated with the exophthalmic type.

Dr. Charles H. Frazier, Philadelphia: I feel disposed to take the view that Dr. Matlack has as to the importance of the thymus gland in the intoxication we see associated with the enlarged thyroid. I know in the literature we find cases which are extraordinarily important in pointing in the other direction. Probably Dr. Stewart when he referred to von Haberer's work will remember a description of a lawyer by profession who had been operated on previously by double ligation, who was brought to von Haberer's clinic almost dead. He was taken from the railroad station to the hospital on a stretcher, put to bed and von Haberer tried to keep him as comfortable as possible by morphin and cardiac stimulants. He was gasping for breath and day after day until finally the patient himself decided on something being done for his relief. Under local anesthesia von Haberer opened the region of the thymus and there found and removed a small clump of tissue, about as large as the little finger, which he thought was thymus and which proved afterward to be so. Much to his surprise, without doing anything to the thyroid, there followed striking and satisfactory improvement and his ultimate recovery. That case, striking as it is, seems to me is an exception to the rule. I have been looking for them in my clinic, having most of the patients fluoroscoped, and have not found as yet any coincident enlargement of the thymus gland nor thyrotoxicosis.

As to the question of whether the inferior or the superior pole should be ligated in lobectomy, I think the superior is to be preferred to the inferior for the reason that I believe there is more to the operation than the mere blood supply. We know what a tremendously rich blood supply the thyroid gland has and how little it can be affected by the ligation of one of its six or more blood vessels. So that while for cosmetic reasons the ligation of the inferior pole is the more desirable the clinical results I believe will be infinitely superior if we elect to ligate the superior pole.

Dr. George C. Johnston, Pittsburgh: Two cases (Dr. Bowen's) have come to my notice; one patient died within twenty-four hours after thyroidectomy. There seemed no reason why that patient should not recover. In two days in a hospital Dr. Bowen saw another patient apparently about to die following thyroidectomy. He was impressed that there was mechanical dyspnea so that he took the patient to the Roentgen-ray room and fluoroscoped her in the recumbent position. Do not look for the thymus with the patient in the erect position because you will not find it. If you look for it in the recumbent posture you may find it. Dr. Bowen found this thymus. He conceived a bizarre idea of introducing a bronchoscopic tube, in the hope of the surgeon getting there and doing something. He introduced it down the bifurcation of the trachea of the patient and she was immediately relieved. The bronchoscope was left in twenty-four hours and the patient proceeded to recover. Following that experience they made it a routine procedure to examine patients in the recumbent posture. They keep the patient under observation with somebody competent to pass a bronchoscope.

The relation between the thymus and thyroid in cases of thyrotoxicosis is a very doubtful one. Practically I believe there is little connection. At Johns Hopkins they have been running a series of experiments with thyroids which were considered inoperable by x-raying the thymus instead of the thyroid. We have tried the same thing and gained no results. We have found cases of enlarged thymus with patients suffering from vague neuralgic pains and suffering also from spasmodic dyspnea. One of them in particular has a very large thymus. One patient was in such a condition that thymectomy was out of the question. The patient was given treatment and rendered quite comfortable. Many of these cases of undoubted thymus are diagnosed as aneurysm, mediastinal tumor, etc., but if you put the patient in the recumbent posture you will find the thymus drop away from the heart and give the shadow of a dog's ear. It is such an unusual thing that it is quite diagnostic.

Dr. Stewart, closing: Dr. Guthrie misunderstood. I said that 30 per cent. are not entirely cured or are not helped in any way. Those not helped in any way make from 5 to 10 per cent. of the whole.

Dr. Herman, to whom I am indebted for help in the anatomical study of the vessels of the thymus, referred to the internal mammary blood supply. In operating you deal with the inferior thyroid, not the internal mammary.

Dr. Frazier mentioned the absence of thymus glands in cases he observed. Von Haberer observed a large number. Probably in certain districts enlargement of the thymus glands takes place more often than others. My observations are drawn from the Clearfield district. Dr. Johnston has mentioned obstruction of the trachea due to enlargement of the thymus. Most of the cases which develop status thymicus have no obstruction of the trachea. I had an opportunity of observing one patient who died of status thymicus and on this supposition bronchoscopy and tracheotomy were done but failed to give any relief.

Time does not permit to give quotations concerning the rôle of the thymus in goiter, but von Haberer has done five thymectomies in cases of goiter with practical relief in all of them.

SOME OF THE MORE UNUSUAL AFFECTIONS INVOLVING THE DEEP URETHRA AND BLADDER *

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Two reasons have influenced me in selecting the title of this paper: (1) Studies and investigations over a number of years lead me to the conclusion that in the majority of cases symptoms referable to the deep urethra and neck of the bladder were not relieved in their entirety by the accepted and approved methods of treatment of the times. (2) When an explanation was sought for the inefficiency of treatment, and the persistence of continued disability and sufferings referable to these localities by an examination and exploration with the more modern cystoscopes and cysto-urethroscopes, I was amazed and marveled at the pathological mine found, and the numerous and wondrous nuggets contained therein.

Although as long ago as 1882 Burkhardt Grünfeld, and Ultzmann described certain lesions of the posterior urethra of a polypoid or

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papillomatous nature. It was not, however, until the advent of the water dilating and air inflating cysto-urethroscope of Goldschmidt and the elder Wossidlo that our knowledge of both the normal and the pathological anatomy of the deep urethra and the neck of the bladder has been tremendously increased, and the intelligent treatment of posterior urethral lesions has made a great step forward.

At the present time with the use of such improved cysto-urethroscopes as those of Bürger and McCarthy, we find that the affections of the deep urethra and bladder neck are not as uniform as was commonly believed, and that a great variety of lesions may give rise to identical symptoms, and as we have heretofore fallen into the routine of treating the effects instead of the causes we have had many disappointments and unsuccessful results.

With the use of the latest instruments the lesions come into the field of vision of the skilful operator with kaleidoscopic splendor, and might be quite likened to a submarine garden of a Jules Verne, with its branching coral and lace-like fimbria, which float lazily in the irrigating fluid as the plants in the Sargasso Sea move with the tide.

It is a matter of ease to determine the number, position, size, character and attachment, and the trained urologist is in a position to attack and destroy them with comparative ease by means of the operating cysto-urethroscope of Bürger.

As a good knowledge of the anatomy of this region is essential for success in the operative management of these cases, and as practically all the textbooks, general or special, are lacking in information and good description of the posterior urethra or neck of the bladder, it might not be amiss, at this time, to mention a few of the most important points.

A normal sphincter of the bladder in youth or early manhood presents a smooth concave edge except for a notch in its upper surface, or when the prostatic urethra is of wide caliber the sudden narrowing as it approaches the internal sphincter throws the latter into very fine folds. These become more pronounced with advanced years. Should the patient strain during the examination in an attempt to empty the bladder, one can observe the lower border relaxing downward, the upper and lateral walls remaining stationary. Goldschmidt has described a case in which one of the lateral walls of the sphincter did not give way under the pressure of the irrigating fluid, and remained vertical instead of becoming concave. He believed that this was due to an infiltration following some chronic inflammation, such as is not unlikely after a posterior urethritis, etc.

Of great importance oftentimes is the degree of descent of the floor of the posterior urethra from the sphincter to the fossula prostatica, a depression behind the colliculus seminalis. This descent is particularly steep in median bar hypertrophy, or in acute inflammation of the middle lobe. The fossula itself always appears darker and velvety looking, owing to the fact that on account of its depth it is further from the source of light than the other portions of the urethra, which are normally a pale pink or a yellowish red color. The descent is steep also in conditions leading to obstruction for a long period of time at or near the external sphincter, causing a pouch to form in the posterior urethra. Normally, this fossa is occasionally traversed by a heavy thick fold which blends further forward into the colliculus seminalis. These are very pronounced in old men.

The colliculus, the buffer, against which urologists have been bumping in order to explain most posterior urethral symptoms, is a small split-pea size elevation in the middle of the lower floor of the urethra. Normally, it varies greatly in shape and size, and its color also varies considerably according to the intensity of the light and the degree of distention of the urethra. It may be dome-shaped, perfectly smooth, and by fine gradations blend into the crista; mushroom-shaped, or like a cock's comb, the opening of the ejaculatory ducts and the prostatic utricle alone serving to distinguish it from the crista into which it merges; lastly, there is the slender type with conical tip which rises abruptly from the distal wall of the fossula prostatica, and its outline is also very distinctly marked off from the crista. The orifices of the ejaculatory ducts, and the utriculus masculinus are usually seen on the upper and anterior surface; the former, however, sometimes empty into the utriculus and cannot be seen. The pressure of the endoscope will often cause fluid to issue from the ducts and help to locate them in different cases. The sudden clouding of the irrigating fluid which often causes the endoscopist temporary embarrassment in his examination may be from the sulcus lateralis, the depression alongside the colliculus into which the prostatic ducts empty, and may consist either of prostatic fluid or of phosphates. Normally, the orifices of these ducts are not visible, but when inflamed they may appear as dark red splits or dots with pouting mouths.

In many instances one may see slowly oozing pus uncoiling itself snake-like, discharging itself from these ducts.

Wossidlo and Bürger, for the purpose of clinical study, arbitrarily divide the posterior urethra as follows: (1) The sphincter edge, under which is included (*a*) the roof, (*b*) the floor, and (c) the two sides; (2) the supramontana, which is that portion of the urethra between the sphincter edge and the colliculus, the floor of which includes fossula prostatica and the frenula posterior; (3) the montana, which includes the colliculus, the sulci lateratis with the mouth of the prostatic ducts; (4) inframontana, which includes the christa urethra anterior.

The Lesions of the Sphincter Edge.—Aside from the usual inflammatory changes associated with chronic gonorrhea, a few unusual lesions have been noted:

1. Bullous edema is a condition occasionally seen in the early transitional stage between soft and hard infiltrations. On the internal sphincter edge we frequently see polypoid-like growths, which appear as little vesicles, or grape-like masses, somewhat translucent.

2. Polypi, although somewhat rare, are found in two forms, as described by Newberger and Lewin. The mucoid, gelatinous or soft, consist of a single, central blood vessel, situated in a stroma, composed of loose connective tissue, containing numerous embryonal cells, and the entire mass surrounded by a layer of flat epithelial cells; these are more or less translucent. It is by the single, central blood vessel that they are to be distinguished from the polypoid-like mass of bullous edema. They have a small, thin pedicle, and float easily about in the irrigating fluid. The second form may be called the fibrous or hard polyp. These are considered as fibromata by some authors. They are to be distinguished from the soft polypi from the fact that the connective tissue stroma, and the central vessel are very markedly developed and present a more or less compacted solid appearance, so that the central vessel, in proportion to the growth, appears to bear a rather insignificant relation to the size of the mass. The entire structure is covered by layers of flat epithelial cells. Often this variety is converted into a true fibroma. They are usually attached by a broad base, which make them appear more or less fixed and erect, as compared with the soft variety. These growths may be found at any point of the sphincter edge, but more often in the lateral aspects, and more or less within the grasp of the sphincter. They may be single, but are generally in groups of pear or flask shaped bodies. They are a pale, reddish gray color, and more or less translucent. The fibrous form is seldom found at the sphincter edge.

Polypi are probably more frequently found in the supramontana portion of the urethra, or the fossula prostatica, where, in the early history of the growth, they are to be distinguished from bullous edema, and ordinary granular urethritis, which can usually be done by noting the characteristic central vessel of the polyp, and the smooth, shiny, moist appearance, as compared with the dry surface of the granular picture.

Papillomata.—Papillomata of the urethra differ considerably from those affecting the bladder. Instead of the pedicled villous growth of the so-called fimbriated papilloma, one of the most beautiful and interesting pictures presented to the urologist, the delicate fibrillæ float freely in the irrigating fluid like a delicate sea moss in the ocean currents. We have the variety of cauliflower-like growths which are more or less indurated from the preponderance of connective tissue, as are seen on the surface of the foreskin, and the upper surface of the glans penis. The favorite seats are on the colliculus or over the side walls of the lateral sulci. According to Oberländer, in many instances there is no apparent cause for these growths, and they can only be explained by the loss of the superficial layer of epithelial cells, either from slight injuries or disease, with the resulting outgrowth of the exposed papillary bodies, in the presence of heat, moisture and chronic irritation. While recognizing this fact, however, Bruggs, Legueu and Halle have described a form of papillary outgrowth, which is superengrafted on an area of infiltration found in chronic urethritis.

Colliculus.—Lesions of the colliculus or verumontanum have been studied by Bürger, Dietz, Fenwick, Scharff, Tano and Verhoogen. The urethroscope has certainly demonstrated beyond the shadow of a doubt that many obstinate and even incurable lesions involving the deep urethra are due solely to an involvement of the colliculus. Many of these cases have hitherto been considered in the light of a chronic inflammation of the prostate or seminal vesicles. When we study the etiology of the conditions we find that gonorrhea is a frequent but not an essential factor in its causation, masturbation, excessive coitus, etc.

The pathological changes which the colliculus undergoes in the course of these diverse inflammatory processes are quite numerous and varied. Thus we find erosions, granulations, polypi, cysts, papillomata, and deformities of various type. (1) Papillomatous changes of the colliculus are exceedingly common, and they assume so many types and shapes that no words could describe them. (2) Polypi are likewise not infrequent, and vary in size and numbers, and they are usually multiple, and are then found in masses like bunches of grapes. Deformities are numerous and greatly vary from the dome and mushroom type to the phalloid. (3) Tumors like adenoma are exceedingly uncommon because of the few and rudimentary glands found in the deep urethra.

While under normal conditions the orifices of the prostatic ducts are not to be seen in the lateral sulci and behind the colliculus, in cases of chronic prostatitis these openings become much enlarged, and in many instances seem like caverns, from which clouds of purulent fluid escape on pressure. In these cases the colliculus is likewise involved in the inflammatory process, from its close proximity, and is usually much swollen, red and frequently so large that it must be pushed to one side in order to expose the mouths of the ducts of that side.

Technic Employed in Examination.—In the examination of the deep urethra the instruments employed have been a Hayden endoscope, the Bürger urethroscope (water dilating), an operating cysto-urethroscope, and its modification by McCarthy. The Bürger has the ordinary, angular beak common to all cystoscopes, and is thought to make too much pressure in examining straight tubes, thus disturbing, somewhat, the picture — while the McCarthy has a straight beak. The difference in construction makes one instrument applicable, where another, after a trial, may prove not to be. The McCarthy instrument is rather more difficult to introduce, and patients complain of much more discomfort at the time. In only a few instances have we found it necessary to anesthetize the deep urethra. When such is necessary, we make use of the method and instrument suggested by Lewis, namely, a tablet of alypin, 1½ grains, deposited in the deep urethra by a special instrument called a tablet depositor. This instrument is inserted into the urethra to the required depth, the obturator removed, and any accumulated urine allowed to drain away. The tablet is then placed in the tube, and the obturator inserted, pushing the tablet before it into the urethra. The urethroscope is pushed forward into the bladder. This maneuver often requires a little skill and patience to accomplish. The obturator is then removed and the lens system introduced. The irrigation cock is now attached and boric acid solution, at a temperature of about 100, is allowed to flow gently in, distending the bladder. After an inspection of the trigone and mouths of the ureters, the instrument is gradually drawn forward until the sphincter edge is seen. The entire circle is carefully studied by rotating the urethroscope, and finally the entire length of the prostatic urethra. Should the patient at any time complain of urinary discomfort it is simply necessary to disconnect the irrigating tube and open a cock on the urethroscope, and allow such fluid to escape as will relieve the symptoms of overdistention, and thus prevent the involuntary muscular contractions which are not only painful, but frequently cause hemorrhage, and thus interfere greatly with and often prevent further examination for the time being.

For posterior urethral work I much prefer the water dilating urethroscope to the simple endoscope. The latter as a straight tube is more difficult to introduce, and the picture must be constantly freed from the influx of urine from the bladder, either by constant swabbing or drainage by an aspirating pump.

Case 1. — Most unusual case, referred by Dr. Lamborn of Pennsgrove.

J. D., male, aged 45, married, gave no history of gonorrhea. For the past two years he has noted some urinary disability, such as unexplained attacks of frequency and urgency of micturition, with more or less pain at the end of urination. During these attacks the urine became filled with all kinds of filament, frequently very cloudy. These attacks would last from twenty-four hours to five or six days, clear up, and he would then remain free from symptoms often as long as from ten days to two weeks. In the interval the urine was clear. He would then have a return of his symptoms. Lately the condition became so frequent that the patient was confined to bed. His urine was cloudy, acid, and filled with threads. He had a constant temperature varying from 99.5 to 101 F.; no chills. When I first saw him he had some pains over the left kidney, and his condition at first was thought to be just a colon pyelitis, or a possible stone. The Roentgen ray showed normal structures, and under urotropin the kidney symptoms disappeared. Exploration of the bladder for stone was negative. I had this patient removed to St. Mary's Hospital, and cystoscoped him with a Bürger urethroscope, and found two polypi on the sphincter edge. The pedicles were small and they floated freely about.

I believe the attacks of which this patient complained were more or less mechanical in origin. In other words, occasionally the polypi slipped through the sphincter into the deep urethra during the act of urination, and thus, acting as a foreign body, occasioned the severe urinary distress, and as these growths were probably pinched and minutely torn during the final efforts at urination, we can account for the urinary and constitutional symptoms simulating a posterior urethritis.

Two flashes with the spark rid the patient of all his discomfort and he is now entirely well.

Case 2.—Referred by Dr. A. J. Reiner of Philadelphia.

G. F., aged 32. This case demonstrates the pitfalls in the use of the words "sexual crank," or "neurasthenia." This patient had an attack of gonorrhea five years back, and dates all his troubles from that time. He says that he was affected for more than a year before he was pronounced cured.

Some months later he began to complain of burning sensation in the perineum, some frequency of urination, and a feeling as if his urethra were not quite empty, and a few drops always dribbled away at the end. These attacks of "hot perineum" caused him to have frequent erections, but when he attempted to satisfy his apparently extraordinary desires he either made a flat failure because of impotence or premature ejaculation. His mental condition became so deplorable that he could scarcely attend to his business, and he developed the mental phase, the sufferers of which we have all been guilty of dubbing sexual cranks. He went the rounds, and always received the same answer: "You are a neurasthenic, take a trip and forget your urethra."

At my first examination of this case I was inclined also to think him a crank, the result of a little urethral hyperesthesia, but I decided to cystoscope him. Much to my amazement I found a small, fibrous polyp spring from the right, lateral wall of the montane, and impinging on a reddened and swollen colliculus.

I explained the urethral condition to the man in order to relieve his mind, and three treatments with the spark were necessary to restore him to health and happiness.

Case 3.—Referred by Dr. Louis Burns of Philadelphia.

V. G., aged 22, single, by occupation was a student. On May 1, 1916, this patient came to me complaining of attacks of scalding-hot pains all along the urethra. He complained that his urine would seem to leave the bladder involuntarily, and collect behind an obstruction, which obstruction would then burn and keep on burning until he would be forced to urinate for relief. The urine was always passed without any difficulty.

Such attacks had come on gradually since July 5, 1909. On that day the patient remembers drinking large quantities of ice water, and on that night, one hour after retiring, he had his first attack. For the first few months there were one or two attacks a night, with or without an erection, but later five or six attacks a night was the general average. The pain was always of the same nature described above; however, walking long distances, and overwork would increase the severity.

Until the summer of 1912, three years after his trouble began, he was comfortable during the day, when an occasional attack began to appear. This kept gradually increasing until I saw him last May, 1916, when he was in almost constant pain.

He began treatment under various doctors from the second week of his complaint, and not until I saw him was there ever a cystoscopic examination made. The first sound, which was the very first instrument ever introduced into his urethra during this long stage, was four days before the patient came to me. He noticed, at times, an occasional thread in his urine, and only once did he notice blood, which was one year after his trouble began.

The patient always kept increasing in weight, had a good appetite, and never seemed to feel any bad results from the loss of sleep, except that he was becoming very nervous from the constant worry of no change toward improvement.

A cystoscopic examination revealed a large colliculus with two polypoid growths in front like arms. This rolled backward and forward with the cystoscope like a huge pear. Three treatments have been given, and although the patient is entirely free from all urinary symptoms, some further treatment will be required to reduce the colliculus to its proper size.

Case 4.—Referred by Dr. Cassady of Burlington, N. J.

R. H., aged 38. This patient was a real old sufferer from chronic prostatitis for many years. Irrigation, dilatation, instillation and massage were his daily pleasures. Still the urine was more or less cloudy and filled with threads. To still further discourage this patient he finally became impotent. This so preyed on his mind that his friends were rather alarmed, and feared that he might meditate suicide.

For some time I treated this man along the accepted lines with rather indifferent success. After several months I was able to greatly improve the character of his urine, relieve him of his backache and some of his functional symptoms. I finally sent him away on a trip for six months, which did improve his mental condition to some extent. On his return I decided to cystoscope, and found a very large red colliculus, which, when pushed to one side, revealed a number of very large cavern-like openings in the lateral sulci, from which streamed here and there purulent or cloudy fluid.

The colliculus was so large in this case that it was necessary to so manipulate the instrument as to push it to one side in order to expose the orifice of the prostatic ducts.

With this picture I decided to attempt to introduce a tube into these ducts, and endeavor to wash them out. I procured the finest ureteral catheter possible, with an eye in the end of the tube. This I introduced through the Bürger cysto-urethroscope of old operating type, and after some difficulty I was able to introduce the catheter into each visible duct orifice. The distal end I had connected with a large Luer syringe, with a hypodermic needle, filled with 1 per cent. silver solution. When the tube was in place I had my assistant inject a few drops of silver, which would return as a cloud. This we would wash away with the irrigating fluid, and repeat the procedure with all the visible ducts.

This line of treatment was continued every other day, and the patient made such rapid strides that it was with difficulty he could be kept away from the office.

In all, to date, he has had about ten treatments, the colliculus has reduced greatly in size, the prostate by the rectum is apparently almost normal in outline and sensation. The urine is now clear, with only an occasional thin, light thread, which quickly floats to the top of the glass. His mental picture is almost normal, and he informed me at his last visit, which was the other day, that his sexual desires are returning as indicated by occasional morning erections.

Case 5.—Referred by Dr. Anders of Philadelphia. E. H., aged 59, was a broker. He had gonorrhea twenty years ago. For ten years he has noted some urinary disturbance in the shape of attacks of frequency and urgency with intense cutting pain at the end of urination, occasionally some terminal hematuria. These attacks were very severe, and would necessitate his urinating every ten minutes or so for several days at a time. There would then be relief for from twenty-four hours to three or four days, with a return of all the symptoms. Casually assuming these symptoms to be the indications of early enlargement of the prostate I treated him accordingly, with relief, for a month, then he gradually returned to his old state. Cystoscopic examination revealed a small papilloma on the colliculus. Fulguration quickly removed this, and a prompt relief followed.

Case 6. — Referred by Dr. Lowenberg of Philadelphia.

M. C., aged 41. The patient was operated on for a right inguinal hernia two years ago, since which time he has developed a distressing frequency of urination for which he was unable to obtain any relief. Rectal examination revealed a prostate slightly enlarged and hard. There was no history of venereal disease. He usually had some difficulty in starting the stream. A urethroscopic examination revealed a small projection on the floor of the sphincter edge. While this scarcely seemed pathological, still I sparked it four times with the result that it disappeared, but the patient is only partially relieved of his trouble.

Case 7.—Referred to us by Dr. Phillips of Philadelphia.

C. F., aged 48, had had gonorrhea in early life; no recurrence. Two years ago he had an attack of frequency and urgency of urination, which lasted several weeks, and then disappeared. Since that time he has been more or less conscious of his bladder. Three weeks ago, while urinating, he passed a quantity of pure blood. The bleeding continued off and on for several days. Then he came to the office.

The urethroscope which was introduced with some difficulty, revealed a beautiful fimbriated papilloma, which apparently had its origin from the urethral side of the vesical sphincter, but the growth itself was within the grasp of the vesical sphincter on the bladder side. This patient has had but one treatment, and the end-results cannot be given. We, however, expect a cure.

Operative Treatment. — The operative treatment in most of our posterior urethral cases has been that of sparking with the high-frequency current. These electrical methods have lately attained great vogue, and their methods of application so refined and under control at the present time that their use is a matter of great simplicity and ease, and the results are correspondingly brilliant. In our earlier experiments we made use of the Oudin current in our urethral work, but quickly arrived at the conclusion that the monopolar currant is most applicable to bladder growth where there is plenty of room to move the electrode and obtain a long spark gap. In the urethra this is almost impossible, because the field of vision is quickly obscured by the gas bubbles, and the spark gap must be short in order to avoid the very unpleasant arcing or grounding. This occurs very rarely with the bipolar current. The destruction of tissue is much more rapid and extensive, and secondary hemorrhage is less liable to occur. One great difficulty with fulguration in the deep urethra has been the inefficiency of the insulating material surrounding the conducting wire. To date they are either too thick, or are not sufficiently flexible to be used in such close quarters.

In our work we are using either a fine steel wire with a gutta percha sheath, or a silver wire, No. 24, which is surrounded by the smallest caliber ureteral catheter, so that the wire can be made to project beyond the end of the catheter, according to conditions. In order to still further insulate, I introduce through the operating channel of a Bürger cysto-urethroscope, a small Nelaton catheter, with the tip cut off, through which I pass the ureteral catheter with the wire. This fills up the lumen of the instrument, and makes it much easier to manipulate the projecting end of the wire.

A flat electrode is placed under the buttocks, connected to one pole of the D'Arsonval, while the silver wire electrode is connected to the other pole, and sufficient current turned on (from two to fifteen seconds) to produce the effect desired.

Sometimes only one treatment is necessary, at other times several applications at varying intervals, from a few days to ten days, are necessary to bring about a cure.

One must use judgment as to the points of attack, and the duration of the application. This is learned only by experimentation when the progress of each treatment can be subsequently watched at frequent intervals. We have used the Wappler portable high-frequency instrument, which, while perhaps not as good as the larger type of machines, still has proved most satisfactory in our hands with a little care.

Most of our work in this line has been done right in the office, and patients have usually not lost any time, because the postoperative discomforts have been negligible. Local anesthesia was seldom necessary. When required, an alypin solution or tablets may be used, 1½ grains.

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DISCUSSION

Dr. S. J. Waterworth, Clearfield: I feel that I should stand aside to make way for a urologist to open the discussion of this most excellent paper. However, it may not be amiss to speak a few words from the standpoint of the general surgeon. The essayist gives as one of his reasons for presenting the paper, "the inefficiency of the accepted and approved methods of treatment of the times." In this I fully agree with him and think the explanation is to be found in the fact that most of the great works on genito-urinary diseases were written prior to the routine use of the cystoscope and urethroscope as an aid to diagnosis; and while later editions include chapters describing the technic of their employment, the results of their use in bringing the local pathology to light has not been incorporated in the text of the books.

Let us follow the patient having any one of the more unusual affections enumerated and described by the essayist. On arriving at the conclusion that he should consult a medical man, he is most apt to go to a general practitioner in his community, and nine chances out of ten he will get cystitis tablets, some preparation of buchu, or possibly urotropin. He will be "doctored" in this manner for some weeks or months; then very likely he will see someone who will sound him for stricture or search for stone in the bladder, or use massage of the seminal vesicles. So that it is a long time before he at last arrives in the consulting room of the urologist and has a proper diagnosis made and then with a flash or two of the high frequency he is cured. The statement, which I believe is to be attributed to Richard Cabot, that the very rich man after spending much money and seeing a multitude of doctors, or the very poor man, who goes because he needs must to the dispensary, where he runs the gauntlet of the various departments are likely to obtain the best service, but the middle class man, who goes to the doctor's office and gets tablets, has the poorest chance of correct diagnosis and treatment. However, this is digressing.

What I wish to emphasize is the importance of just such papers as this being presented in a general meeting, so that those of us who do not confine ourselves to this particular line of work, may have our attention directed to what is being done to make for efficiency in the treatment of this class of cases. In those cases, and they are numerous, in which the local pathology of the prostatic urethra is the result of gonorrheal infection invading the vesicles, we have to deal not only with distortions of the physical geography of mountainous ridges and valleys in the posterior urethra, but we have to go higher, to the head-waters, and invade the territory of the seminal vesicles to rid that region of the gonococci malefactors. The laryngologist often traces the pathology that presents itself to view on examination of the throat to sinus infection or defective aeration and drainage. I believe the same principle applies here. To do this it appeals to my judgment that the method practiced by Belfield of Chicago of inundating those remote regions with argyrol by means of its introduction through a longitudinal slit in the vas deferens, gives a practical mode of attack which can be readily repeated. I have followed three of my cases treated in this manner and find that their semen contains spermatozoa. I have had no experience with the vesiculotomy of Fuller of New York. I have had the opportunity to use the high-frequency current only twice on urethral growths. Both were soft polypi of the vesical neck and both occurred in women. These growths disappeared following two or three applications of the spark, operating through the Bürger operating cystoscope. I am very glad to learn of the method of using the catheter for insulating. The nerve and blood supply of that great receptacle for filth, the rectum, are so intimately connected with that of the bladder and posterior urethra, that the pathology of this organ should not be overlooked in scarching for the causes for departure from the normal in the deep urethra.

Dr. Kirby, closing: In reference to the use of local anesthesia, I might say that most of the work has been done without anesthesia, either general or local. The pain is not very severe and, aside from the first shock, the majority of patients have made but little complaint.

Cocain I never use in the deep urethra, because of the great dangers and the number of alarming consequences. When, however, either because of the urethral hyperesthesia or perfect tranquillity is essential for the operative technic, I make use of alypin, either in the form of tablets, 1½ grains, to be introduced by a repositor, or in a 1 or 2 per cent. solution instilled with an Ultzmann syringe.

From a large experience, I now make use of the bipolar method rather than the monopolar, thus avoiding the unpleasant grounding. The urethral canal is much too small to satisfactorily manipulate the electrode when the Oudin current is used.

With regard to the treatment of old cases of prostatitis, I believe we have made a distinct advance by destroying these infected ducts and passages, either with a fine wire or by the introduction of the small catheter and disinfecting them with protargol, silver or formalin. In many instances, our results have been astounding.

In conclusion, a word of caution. Destruction of growths about the neck of the bladder are sometimes followed by a rather annoying and possibly alarming hemorrhage. This complication is less apt to occur when the bipolar method is used.

ABNORMAL COAGULATION TIME OF THE BLOOD AND METHODS OF OVERCOMING IT *

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Human blood has a fairly definite coagulation time. When the blood coagulates within the narrow boundaries of this time, we call it normal.

The factors which cause this phenomenon are many, and a disturbance of any one of these will delay or increase the clotting time. In order to understand and to treat correctly the abnormal cases, it is essential to know these factors concerned in normal coagulation of the blood. Howell's theory of coagulation is the simplest and the one which we will assume. In brief, his theory is that kinase and calcium act-

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ing on prothrombin form thrombin, and thrombin has the power to convert fibrinogen into fibrin which is the principal part of the clot.

Kinase + calcium + prothrombin = thrombin +fibrinogen = fibrin.

Kinase is an organic substance or substances found in the cellular elements of the blood and in all tissues. It facilitates the process of clotting. Calcium is present in practically all cells. Prothrombin is derived from the plaques and white blood cells, but just where it is originally produced has not been determined. Fibrinogen or the material from which the clot is formed is principally derived from the liver. Experimentally, this was shown by forming an Eck fistula, which is an anastomosis between the portal vein and the inferior vena cava on a dog and ligating the hepatic artery and portal vein going to the liver. By this operation the liver is practically eliminated from the circulation. When the Eck fistula plus ligation of the vessels is performed and the fibrinogen is removed from the blood, it is not reproduced and the coagulation time is lengthened or clotting does not occur. The same phenomenon is seen in necrosis of the liver.

What prevents the clotting time from occurring in the circulation? There is a material in the circulating blood called antithrombin which maintains this delicate balance and prevents the action of kinase plus calcium on the prothrombin. This antithrombin is most likely contained in the blood plaques. Any experimental attempt to shorten the coagulation time within the vessels is overcome by this delicate balance, although the time may be more easily lengthened, as will be seen later. This will be maintained, however, for a short time only. The substance called antithrombin can be produced experimentally or a substance having a similar action can be substituted for it. Solutions of preparation of pepsin, trypsin, peptone, snake venom, extract of leech heads, etc., have this property, but are too dangerous for clinical use. Snake venom in exceedingly small amounts will destroy the coagulability of the blood. Witte's peptone produces similar results. Some substances have the power of acting on the blood both within the body and in the test tube; some only within the body and others only in the test tube. Snake venom and Witte's peptone are examples of materials which apparently act by stimulating the production of antithrombin. Extract of leech heads, commercially known as hiruden, acts both within and without the body. It evidently contains a substance similar to antithrombin. Within the test tube, numerous substances such as sodium or magnesium sulphate, oxalate solution in proportion of 0.1 per cent. strength or sodium citrate will prevent coagulation. Sodium citrate may be injected into the circulation in limited amounts. It does not change the coagulation time of the blood, however. It is used very satisfactorily in transfusion in proportion of 10 c.c. of a 2 per cent. to 100 c.c. of blood; the others are too dangerous.

Materials to Change the Coagulation Time.—As stated above, the variation from the normal can be obtained with difficulty. For instance, the injecting of pure thrombin has only a transitory effect in shortening the normal time. If, however, the time is clinically lengthened, numerous measures are available to correct it and restore it to the normal. If it is determined that the calcium content is deficient, calcium will correct the defect. If any of the other materials are deficient, they are best corrected by serum, defibrinated blood, transfusion of blood, etc. This will be discussed more fully under clinical conditions. The effect of the serum may be sufficient to permanently establish the balance or it may have only a transitory effect, as in hemophilia. Coagulation of the blood obtained directly from the vessels by means of a needle and that obtained from a puncture of the skin are entirely different. The former has a longer coagulation time than the latter, because in the puncture wound kinase derived from the tissues will act, thus shortening the coagulation period. In stating the coagulation time, the method or instrument used should be mentioned, as each has its own normal time. The coagulation time in the wound of an arteriosclerotic patient with a high blood pressure may be apparently lengthened due to the fact that the high pressure of the blood washes away the clot, thus interfering with the normal clotting time.

Diseases of the Liver.—In certain jaundice cases, the oozing is difficult to stop. This is apparently due to the pigments combining with the calcium. This form of delay responds very well to calcium medication, but in other cases where there is a deficiency of fibrinogen or increased antithrombin, it is of no value. As described above, any condition that materially interferes with the liver tissue or its circulation lessens the fibrinogen content. Coagulation is lengthened in necrosis of the liver, from chloroform or phosphorus poisoning, and in acute yellow atrophy. In cirrhosis of the liver or Banti's disease, one may or may not have the time increased. Just what is deficient here is not known. In malignant disease or amebic abscess, the time has been reported lengthened. Acute infectious disease does not materially alter the time. In typhoid fever, it is usually shortened, but in exceptional cases may be prolonged. Hodgkin's disease frequently lengthens the time, but what factor is deficient is not known.

In a certain few cases of pernicious anemia, splenic anemia and leukemia the time is greatly lengthened for various lengths of time; by that I mean there are periods of normal varied with periods of greatly delayed time. Before all operative measures and in pregnancy the time should be carefully taken in these cases. The cause is apparently a deficiency of prothrombin. Transfusion, human serum or horse serum usually corrects the immediate delay, but it tends to recur.

In purpura hemorrhagica there is lengthened coagulation time. This coagulation time is apparently due to deficiency in the blood plaquelets, although at times there is an increase in the antithrombin. This disease responds especially well to the medication of serum. Hemophilia is a condition limited to the male, in which the coagulation time of the blood is markedly prolonged, in consequence of a deficiency in the amount of prothrombin plus the added characteristic that it is transmitted by heredity, in accordance with the so-called law of Nasse. It is characteristic that the blood obtained directly from the vein without coming in contact with the tissues take much longer to clot than does the blood obtained by a puncture which comes in contact with the tissues. Frequently, there is a diminution of the number of blood plaquelets. Treatment consists in hypodermatical administration of serum, the local application of serum, of blood clot, etc. Local treatment will be described later.

No treatment is of much permanent value. Transfusions, serums, etc., will give temporary results, but the disease sooner or later recurs. It is said of this disease that the clotting time is shorter during the process of the hemorrhage. This statement does not seem to be true. It is true that there are waves in this disease at which time the clotting period will be longer than at others.

Hemorrhage of the new-born, malena, etc., is a subject of which the pathology is not clear. It is frequently confused with some malformation. It is well known that it may come on anywhere from twenty-four hours to five days after birth. It has been supposed to be due to infection. What factors of the coagulation are deficient has not been definitely determined. I have seen cases where the coagulation time has been as slow as twenty-five minutes. In one type of case no treatment is of value, as the hemorrhage has occurred in the organs before there have been any external manifestations. In another type there will be early subcutaneous petechia and intestinal hemorrhage which responds very readily to human serum or horse serum. In the third type where the first sight of the hemorrhage is at the umbilical stump, valuable time should not be lost by attempting to control the bleeding with local measures. Human serum or horse serum should be given immediately, eliminating, of course, the cases where the cord has not been properly ligated.

Anemia per se, as stated previously, does not diminish the coagulation time of the blood, but rather tends to increase it. The mistake in assuming that anemia does give slower coagulation time is due to the defect of instruments recording the coagulation time. Of course, anemias that are the result of diseased conditions and not frank hemorrhage may have delayed coagulation time, because the said anemias are the result of delayed coagulation time. In acute alcoholism there is at times a delayed coagulation time. Again, just what factors are involved have not been determined. In tuberculosis, the coagulation time is usually normal. No serum therapy or transfusion has any direct bearing on the hemorrhage. In treatment of hemorrhage in the intestinal tract, as for instance in typhoid fever, gastric and duodenal ulcer, the coagulation time is not influenced at all by the serum therapy, providing, of course, the coagulation time is normal. This again shows the necessity of determining the coagulation time before instituting any variety of treatment. Gelatin among other medications advised for this condition is supposed to have a specific action in increasing the coagulability of the blood. Whatever value it may have is due to the amount of calcium it contains. It has also been given hypodermatically, but the dangers of tetanus were so great that its use has been discontinued. In diseases in which we have a shortened coagulation time, the most common are gas poisoning and overdoses of coal tar products, the shortening in the coagulation time being apparently due to a chemical change in the blood, as for instance in carbon monoxid. The treatment usually sufficient is venesection (large amounts) and the infusion of salt solution into the veins. At times, transfusion may be indicated.

In cases of thrombosis, the abnormal factor is usually a decrease in the antithrombin or an injury to the vessel wall and correction of either will be a more dangerous procedure than to allow nature to overcome it.

Occasionally one is called to stop a hemorrhage where the operator is too timid to ligate a bleeding vessel, but, where a continuous ooze is on the surface from many small capillaries, adrenalin will often contract the capillaries and allow coagulation to occur. Pressure where possible is, of course always indicated. Where these fail, coagulose, coagulen ciba, or kephalin with pressure is frequently very satisfactory. They act like all powders as a foreign body which in itself assists coagulation (e. g., cobwebs used by the housewife years ago). With this they contain blood plaquelets which furnish kinase. Kephalin or the thermoplastic phosphate is usually derived from the brain or thymus tissue. It is very satisfactory, but is so unstable that it is only of limited value. If none of these are available a blood clot from another patient or a piece of human muscle cut in fine pieces or even the tissue of an animal if sterile, will furnish the necessary material which is kinase. All or any one of these may fail in a case of hemophilia, since the defect is a lack of prothrombin in the patient's blood. However, the muscle tissue seldom fails in the average case unless one attempts to control a spurter with local means instead of a ligature.

The local measures as detailed above should be employed, but at the same time the clotting time should be determined by a coagulometer. If any lengthening is present, it is controlled by the administration of human or horse serum, calcium, thyroid extract or if necessary transfusion. Preparations of coagulose, coagulen ciba, or kephalin are valuable, but in my hands have not been found as valuable as the serums for internal medication. The local measures for stopping oozing are many, and their indications depend on whether the coagulation time is normal or not, and whether the bleeding point is accessible.

The ordinary chemicals are not discussed here, as it is taken for granted that all are familiar with their action.

On account of the number of inquiries which I have received as to the technic of using my instrument, I am appending here for publication a description of the instrument and the technic for the use of the same:

Description of Instrument.—It consists of an 8-ounce thermos bottle without the silver lining, an aluminum stand and two rubber corks which fit snugly into the bottle. One cork has a hole in it for a thermometer which registers up to 140 F. The other cork has four openings, each of which is lined with a brass flange. Into each of these openings a glass rod fits. These rods are 4½ inches long with a diameter of 8 mm. One end is cone shaped with a flat tip 4 mm. in diameter. The other end is slightly bulbous to prevent the rod from slipping through the flange.

Method of Application.—The thermos bottle is filled with water at 98 F. to within 1 inch of the top. It is then covered with the cork containing the thermometer to prevent any change in the temperature of the water. The rods within the second cork are first scrubbed with soap and water and then cleansed with alcohol and finally with ether. This cork is then substituted for the one containing the thermometer, so that the rods will become heated to the temperature of the water. This is done while the finger of the patient is being prepared. The rods during the time that they are in the bottle heating up to the temperature of the water will have collected considerable moisture, and it is therefore necessary to wipe them dry before collecting the blood, else the moisture will dilute the drop of blood. The finger is given a good stick so that it bleeds without pressure. The first drop of blood is wiped off, and as soon as the second drop or whatever drop you are going to use appears, the cork containing the glass rods is removed from the bottle and the rods are wiped dry. Then with care each one of the rods is placed in contact with the drop of blood. If done carefully, the same size drop will be taken up by each rod. The time from the appearance of the drop until the blood is collected and the cork replaced in the bottle should not be more than ten seconds.

The end point with this instrument is determined in three ways: 1. In explaining the end results we shall number the glass rods in the order in which the blood was collected on them. At the end of two and one-half minutes Rod No. 1 should be pushed down into the water. It will be noted that all the blood falls off the end of the glass rod and breaks up into a fine cloud. Rod No. 2 is introduced into the water at the end of three and one-half minutes. There will still be considerable falling off of the blood, but when it breaks up the particles will be coarser and there will remain a small amount on the end of the rod. Rod No. 3 is introduced into the water at the end of four minutes. There will still be noted some dropping off of the blood and there will be found a larger amount of blood adherent to the end of the rod. Rod No. 4 is introduced into the water at the end of four and one-half or five minutes, depending on the action of the former rods. There will be a slight falling off, but the greater part will be found to be adherent to the end of the rod if coagulation has taken place. The fact that we start from two and one-half minutes of the time of the appearance of the drop is only an arbitrary factor. The test can be begun at any time and the rods introduced at any time that the operator desires. 2. The cork containing the four rods is now removed from the bottle and held up to the light with the end on which the blood is adherent nearest to the eye. On looking through the rods, the following results will be found: Rod No. 1 will be clear. On Rod No. 2 will be observed a slight reddish tinge. On Rod No. 3 this reddish tinge will be somewhat deeper in color and the end of Rod No. 4 will be almost covered with a red clot. 3. The end of each rod is blotted with filter paper or blotting paper. The blot made by Rod No. 1 will be practically clear. Rod No. 2 will show a slight red color, Rod No. 3 will show a more distinct red, and Rod No. 4 will show a clot. If the last rod does not show the blood to have coagulated the test should be repeated with the first rod introduced at four minutes and the others at either half-minute or one-minute interval.

It is a well-established fact that the first drop does not coagulate as rapidly as the later ones, and as we want to know the shortest time, we take about the fourth or fifth drop. Blood that is taken from the veins and does not come in contact with the tissue juices does not give the true clinical coagulation time. The tissue juices are one of the most important factors in the causation of coagulation.

2025 Walnut Street.

DISCUSSION

Dr. Ernest Laplace, Philadelphia: It is interesting to know the limit of coagulability within which it is safe to operate. Certain cases take as long as eight or ten minutes for coagulation, and my rule has been to try to bring it down to coagulation in three or four minutes before I thought it was quite safe to operate in order to avoid undue hemorrhage.

Dr. Dorrance (closing): Coagulation time in six minutes is perfectly satisfactory to us in certain instances. We have to qualify with the instruments we are using. With mine anything under six minutes is satisfactory. In amputation we could do it with a coagulation time higher. We must judge by what we are going to do. We date back twenty-four hours in jaundice in a liver condition. Where it is an amputation and an emergency we must go ahead using a blood clot or muscle from somebody else to overcome the lengthening.

ON THE EARLY DIFFERENTIAL DIAGNOSIS BETWEEN DEMENTIA PRAECOX AND MANIC-DEPRESSIVE INSANITY*

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The differential diagnosis between an established dementia praecox and an established manic-depressive insanity offers, as a rule, no special difficulty. It may be otherwise, however, when the patient presents himself in the very beginning of his psychosis. Here the vague and ill-defined character of the clinical picture not infrequently necessitates caution in the formation of an opinion. It is true that early in the development of the psychosis, the symptoms may clearly indicate the oncoming dementia praecox or the oncoming manic-depressive insanity, but this is not by any means always the case. The patient may present himself in the phase of mild or beginning depression with apathy and perhaps obvious physical ill-health, but without a clearly marked picture of confusion or a clearly marked attitude of self-accusation or still less of persecution. Under these circumstances we merely have general principles to guide us, and these may not prove of much avail. Let us see, however, in how far these may be of service.

By far the larger number of cases of both dementia praecox and manic-depressive insanity, no matter what other symptoms they may present, are in their earliest period in a phase of depression. This depression itself offers nothing characteristic, and its significance can only be determined by the presence of associated symptoms. If for instance confusion be present in ever so slight a degree, the scales incline toward dementia praecox. If again the attitude of mind even in the absence of clearly developed delusions is in the slightest degree self-accusatory, the scales incline toward manic-depressive insanity. Further, if the patient complains of visceral or hypochondriacal sensations, suspicion should be directed toward dementia praecox. Visceral or hypochondriacal sensations are to be interpreted as somatic hallucinations. They are rare in the depressive phase of the manic-depressive insanity of youth and exceedingly common in dementia praecox. Especially do they become significant when they are referred by the patient to causes external to himself. Such a fact at once determines the diagnosis in favor of dementia praecox. This is likewise the case just as soon as the hallucinatory sensations of the patient give rise to or are associated with persecutory ideas.

If, on the other hand, visceral or other hallucinatory sensations are absent and there is no element of confusion, the diagnosis should incline toward the depressive phase, the melancholia, of manic-depressive insanity. Of course, if in addition a self-accusatory attitude is discovered with or without delusions of self-blame, the question of diagnosis is definitely settled. Unfortunately, the clinical picture presented is not always clear, and may be far from typical. Now and then, for instance, cases of undoubted dementia praecox have interwoven with other delusive ideas, also ideas of sinfulness. These ideas, however, lack the clear definition of the delusion of the unpardonable sin of melancholia, are associated or intermingled with delusive ideas or hallucinatory states referred to causes without the patient and thus form only a part of a picture of general mental confusion.

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*Prepared for the Section on Medicine of the Medical Society of the State of Pennsylvania, Scranton Session, Sept. 21, 1916.

Somatic hallucinatory states are, as has already been pointed out, rare in the melancholia of youth; however, they may occur, and it may be well to recall that in the melancholia of later life they are particularly common. However, whenever occurring, this important fact is to be borne in mind. The patient regards his physical suffering, even though inflicted on him from without, as merely his just due, as merely part of his punishment for his past sinfulness.

However, that circumstances may arise in which the differentiation in the early periods of dementia praecox and manic-depressive insanity becomes exceedingly difficult must be readily conceded.

When we turn our attention to other factors, such as age and sex, little help is gained. Manic-depressive insanity as a rule does not begin until adult life has been well reached. It is rare before 18, and much more frequent after 20 or 21 than before. If, therefore, the patient is relatively young, that is, if his age is in the range of 13 to 17 or 18 years, the presumption is in favor of dementia praecox. If, on the other hand, the age is greater than this, this element of differentiation fails, inasmuch as dementia praecox, like manic-depressive insanity, very frequently comes on in the third decade of life. Again, the factor of sex is likewise of little value. In manic-depressive insanity the female sex predominates in the proportion of two to one, while in dementia praecox the preponderance is in favor of the male, but it can be readily seen that this factor is one on which no emphasis can be placed.

Not infrequently it is necessary in beginning cases to await the gradual development of symptoms before forming a definite opinion. There is one method, however, of differentiating between dementia praecox and manic-depressive insanity which has not yet attracted in this country sufficient attention. I allude to serological diagnosis. Fauser of the hospital for the insane at Stuttgart, being greatly impressed with the importance of Abderhalden's discoveries in regard to the defensive ferments conceived the idea that the Abderhalden method would prove of great significance for psychiatry. He began his studies in 1912, and by 1913 he had studied upward of 250 insane and thirty noninsane persons. Fauser made the remarkable observation that in dementia praecox there exist in the serum of the blood defensive ferments against the sex glands and against the substance of the cortex. He assumed that a primary dysfunction of the sex glands leads to the entrance into the blood of unchanged sex gland protein, and that in the subsequent breaking up of the protein, substances are formed which are injurious to the cortex. The substance which enters the circulation is the internal secretion, the hormone, and in the instance of dementia praecox is abnormal. It is significant also that the blood of male dementia praecox cases reacts against testicle only, and not against ovary, while that of female cases reacts against ovary only and not against testicle. Fauser found that it was only in dementia praecox cases that defensive ferments could be demonstrated against the sex glands. In cases in which a digestion of the sex glands was unexpectedly found and in which a dignosis had previously been made of manic-depressive insanity or of other functional psychoses, the further clinical course of the cases proved that they were really cases of dementia praecox, and that the serological diagnosis had been the correct one.

In the so-called functional psychoses (manic-depressive insanity and the simple psychopathic states) defensive ferments were never found. Fauser made the most exhaustive studies and failed to find defensive ferments against the sex glands or against the cortex, or for that matter against the thyroid, the pituitary, the pineal or suprarenals, or against muscle, liver or kidney. It would seem that in the functional psychoses a coarse dysfunction of the cortex or other structures is not present, but rather that there exists an excessive or an insufficient production of some normal secretion against which a defensive ferment is not formed. Fauser's results have been confirmed by a large number of other investigators. Among these may be mentioned Roemer, Bundschu, Wegener, Ahrens, Neue, W. Mayer, Fuchs, Fremd, Golla and others. The literature of the subject is already so extensive that it cannot even be summarized in a paper so brief as this. The war appears, unfortunately, to have greatly interfered with scientific research in Germany, and it is of the utmost importance that it be continued in this country. No more inviting field is open. However, the utmost care must be exercised in technic and in order that the results should have value, instruments of accuracy, such as the polariscope should be employed. These precautions I believe to be absolutely necessary.

In conclusion, I need hardly point out the importance of securing an accurate serologic method for the differential diagnosis between dementia praecox and manic-depressive insanity. How significant that differentiation is from the standpoint of prognosis scarcely needs elaboration. In manic-depressive insanity, as is well known, the phase of depression or of expansion, as the case may be, pursues a more or less wave-like course, which sooner or later terminates in recovery, the normal level being maintained for a variable period of months or years, until the next attack. In the interval the patient is entirely lucid and there is no trace whatever of deterioration following the depressive or expansive attack. Not infrequently we find in dementia praecox early a phase of depression with subsequently a phase of expansion which strongly suggest the cyclic course of manic-depressive insanity. This is an added factor which occasionally increases the difficulties of diagnosis, but in dementia praecox, save in a small number of cases, each attack is attended by a certain amount of deterioration which in favorable cases may be slight, but usually is quite marked. Even in those cases of dementia praecox which terminate in a recovery, mental weakness or deterioration is, as a rule, demonstrable, but the patient having made a so-called recovery, may remain at this level for a period of months, or more frequently of several years, when another attack may supervene, usually more aggravated than the first and often presenting features which suggest a depressive and expansive wave, the whole cycle, however, terminating in a more marked mental loss.

Inasmuch as the prognosis of the individual attack in manic-depressive insanity and dementia praecox is so different, it is surely of the very greatest importance that we should have a method which would enable us to definitely and at an early period differentiate between the two affections. The discoveries of Fauser and of those that have followed him appear to be of great value and certainly merit a thorough practical application. Serological studies in mental affections will in all probability yield still greater and more important discoveries in the future, discoveries which may not be of diagnostic importance alone, but which may lead to important therapeutic procedures.

1719 Walnut Street.

Have you engaged your room at Pittsburgh for September 24-27?

What do YOU want the State Society to do for you at Pittsburgh next month?

SHALL THE COUNTY SOCIETY ORGAN BE CONTINUED?*

A. B. HIRSH, M.D.
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Has the little medical society paper helped to advance the scientific and other material interests of practitioners enough to warrant its further publication? That is the query in the minds of not a few leaders over the state when comparing actual gains made with the trouble and expense incurred, this being in effect a sort of annual mental balance-sheet.

One would imagine that, with two such excellently edited magazines as *The Journal of the American Medical Association* and the Pennsylvania Medical Journal, members of the organized profession would have ample sources of information on matters connected with our calling. Indeed, at times one even hears the remark that much of what is there printed remains unread because it may not especially interest that particular subscriber. Yet these larger publications cannot find space to include that feature which is nearest the doctor's daily life, his more directly *local* interests. It was this apparent vacancy that originated the county society's official monthly or weekly paper.

And have these minor sheets been reasonably successful in carrying out this worthy purpose? Let us see.

It was necessary, within the past year, only to study such little papers issued in Pennsylvania to learn of their activity in at length arousing the profession here to its dangers through the world-wide sociologic changes that are now taking on ever-growing force. And even though it comes "better late than not at all," this new stand is in a measure reassuring to those having the doctor's material interest particularly in view. Some practitioners, more especially those who in European visits, as long ago as two decades since, noted the progress among continental peoples of state and club industrial insurance, had even then voiced their warning that we ourselves migh prepare for the inevitable. Unfortunately, though, so much of detail makes up the practice of medicine that its merely business side is only too often neglected. Such oversight had until lately applied to the doctor's losses through the sociologic changes just described, and it has been especially the county society paper, as stated, that has so fully aroused the profession to its wrongs. Thus there is now everywhere a *local* mouthpiece to voice sentiment and organize local forces for a brighter future.

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*Read before the Conference of Secretaries at the Scranton Session of the Medical Society of the State of Pennsylvania, Sept. 20, 1916.

Avoiding generalities, what can we learn from a concrete example? The changes in our ranks since Philadelphia societies have a printed weekly organ may perhaps point the way for like betterments (where not yet made) elsewhere. (It should be said, in passing, that since removal from the city of publication offices of former weekly periodicals, this important medical center had for some years been without a representative source for voicing local medical opinion.)

Realizing what was in store through want of union, some fifteen years ago the writer with Dr. Albert M. Eaton began a systematized effort more fully to organize the profession here. We decided that, as contingencies of general practice usually keep a majority of physicians from *centrally* located meetings of the county society and other scientific bodies, "Mahomet must go to the mountain" by adopting a plan of "Branches" throughout the 131 square miles of the city's area. At present, largely through the eight meeting centers thus created, the Philadelphia County Medical Society has grown in numbers and means, while the scientific, social and general spirit has keep equal pace.

Three years after starting this campaign the writer founded *The Weekly Roster,* for all of the forty medical bodies over the city, in the belief that efficient organization could only be energized by stimulating all these separate units to ever new activity. And the renewed vigor of each constituent society has proved the value of the publication.

Although several county societies over the state had previously issued regular printed monthly meeting notices, the *Roster* was the first of its kind anywhere to contain carefully prepared official news for members in addition to formal meeting programs. The outcome, heretofore impossible, was to make the little sheet a medium for exchange of opinion and for needed publicity within our ranks that is absolutely required for normal development. Actual propaganda was at that time not open to the editor, but articles inserted "by request" finally reached the same desirable end. The writer's frequently repeated suggestion in the *Roster* that each county society should publish its own paper has since borne good fruit; these weeklies and monthlies have multiplied over the land and the profession is ever gaining through them. Especially should we be proud of the editorial work on some of these little sheets in Pennsylvania, their subject matter and typography often equaling that of the larger magazines.

In Philadelphia one views the *Roster* as a medium always making for professional solidarity, in all that this may imply. Take, for instance, the present wiping out of sectarian distinctions, slow as is its progress in so conservative a center as Pennsylvania's metropolis. Note the successful agitation through that paper for the county society by-law that, no matter by what medical school graduated, a candidate of good repute is always eligible for admission provided any former sectarian designation is dropped. Despite the determined opposition of sectarian schools, many of their graduates have wisely joined our ranks to mutual advantage.

Again, transaction of other than medical affairs in the Philadelphia County Society, now practically a large corporation of 1,700 members with funds in proportion, has been modernized through up-to-date by-laws that assign specific duties to certain committees into which the directorate is divided. Ample advance notice of intended legislation and an official report of business done at directors' meetings and at the stated quarterly business meetings of the full society must always appear in the *Roster.* Any element of supposed questionable secrecy is thus removed, and confidence is placed in the able officials who, busy doctors that they are, so unselfishly and freely give of their valuable time and experience. Of minor importance is the shortened session of the quarterly evening business meeting that under former unsatisfactory ways often lasted until nearly midnight and that now usually ends within two hours, a welcome saving of time and good humor.

The one-time sneering refrain of Dr. Don't-Want-to-Join that the great county society is "run" by a small clique is fully met by the care with which officers are annually selected actually to represent members from all the widely separated sections and professional elements of the city. No plan could be more democratic (perhaps with voting by mail included), both in its inception and performance.

Now as for numerical growth: An understanding with the society's energetic Committee on Increase of Membership provides for the *Roster* being posted each week on the office bulletin board of each of the fifty-seven hospitals over the city. Each hospital intern is advised to study its pages and benefit through the meetings whose programs are there given. In addition to the central bi-monthly scientific meetings of the county society, each of the seven

"Branches" into which more distant parts of the city are divided holds such a monthly meeting. Then, whenever its program appears in the *Roster* each physician in that branch district who is not as yet a member of any regular medical society receives a copy along with an attached invitation to attend the meeting and to join the county society. And these two methods help to explain the society's large growth. Hospital interns in particular thus early acquire the meeting habit and, indeed, a number of interns' clinical societies have thereby had their origin.

Recalling the spread-eagle buncombe once the rule in some social professional bodies, the successful campaign of the *Roster,* aided by nearby society bulletins, needs but to be mentioned to be fully appreciated.

The weekly appearance, side by side, in the *Roster,* of meeting notices of forty constituent societies has brought about constant improvement in the scientific quality of all the programs and this postgraduate work must stimulate the profession to ever higher attainment.

Cooperative buying must gain increasing importance in these days of the higher cost of living, especially where the family doctor's fee rates remain practically unchanged since a decade before the Civil War. The *Roster* long ago urged such united action, and Philadelphia now has two of these useful physicians' leagues, each with some 500 participants.

In line with that Americanism, "boost; don't knock," the *Roster* often prints a brief abstract or separate reading notice on the value of certain scientific programs in that issue, and so stimulates attendance at meetings. Wailing about poor attendance has a contrary effect.

The systematic soliciting of ethical advertisements for county society papers is now the rule, to meet the cost of publication, etc. Possibly, in addition to *local* patrons of this kind, united effort may bring "national" advertisements for *all* our Pennsylvania papers (having their *total* circulation over the state in mind) and action along this line might be timely at the present meeting. In procuring such larger class of advertisements, emphasis should always be laid on the value of their endorsement by the American Medical Association — for their appearance in our county society papers is warrant of such approval. A concerted movement is also needed to have our members patronize such advertisers whenever possible, a case of mutual help.

Now that the general public shows such deep interest in matters medical, the little county society papers are more often read by the laity than one might otherwise suspect, and a good or a poor impression of the doctor may result as the little paper is well or poorly edited or printed. As with liberty, eternal vigilance to prevent errors is needed to avoid unjust criticism. Editors should insist on careful typography, punctuation, etc., and a request for assistance in this direction made to the printer or his proofreader will save much time and annoyance and bring credit to our calling.

Some volunteer advice has already been offered in the foregoing. If almost a dozen years of editorial duty permits one to present his experience to brethren of the quill, the writer would suggest the weekly medical paper as a medium for quickly getting into touch, through *monthly* medical papers, with the organized profession over the state. Strenuous times are ahead of us in necessary legislative changes, *prompt* action often being required. In this connection there come to mind events in Pennsylvania, happening within the past years, that are pertinent: One is the lying campaign of half-truths of antivivisectionists here. Newspapers of September, 1915, told of the latter's assault on the State Grange of the farmers at Williams Grove, and of the "anti" sentiment thus created, public opinion hard to controvert if not *promptly* reversed. That is where legislators are influenced and controlled, Pitcairn's antivaccination movement, as another example, having been pushed in just this tricky way; what trouble might have been spared hard-working, public-spirited members of our profession, had certain state society officials been more alert at that time! If an energetic Committee on Public Policy and Legislation of the Medical Society of the State of Pennsylvania was to use the *Philadelphia Weekly Roster* in the east and the *Allegheny County Weekly Bulletin* in the west quickly to inform secretaries of all county societies, all members being thereby called into service, and local newspapers utilized to print "inspired" articles, effective propaganda would undoubtedly follow. Any lack of influence by our profession in the legislature, in questions affecting the people and ourselves, must depend on neglect of just such occasions as are here described to educate promptly and truthfully the public who choose the governor and the lawmakers. The "State House" governor's veto of the imbecile-asexualization bill, and the "base-ball" governor's veto of the bill to pay physicians for reporting vital statistics, etc., both bills having been passed by their respective legislatures, are plain cases in point.

Another occasion was last year's secret understanding between coroners in certain Pennsylvania counties by which favored undertakers *buried* many paupers instead of, without expense to the public, turning these bodies over to the State Anatomical Board, as was formerly done and as the law directs. You may recall that this questionable ilk even sneaked a bill through the last legislature raising the undertaker's pay from $25 to $35 for earthing these paupers. As a direct result there came a marked deficiency of anatomic material in our medical teaching centers until county commissioners in the counties most affected, informed as to the scheme, refused any longer to approve of the undertakers' excess charges.

This whole situation shows the need for quick awakening of the public conscience through its health expert, the physician, in every community where emergencies like those just cited are faced. Along with the Pennsylvania Medical Journal the county society paper would thus stand as a sentinel for the Pennsylvania profession, ever on guard, with the state society's Committee on Public Policy and Legislation in control. Will this secretaries' conference recommend such action to and by the House of Delegates?

Time permits only of merest reference to certain emergencies we meet: He indeed gives twice who gives promptly when calamity overtakes any of our brethren in the state, the Johnstown and other floods being in mind, and here an immediate appeal through the county society weekly to the secretary of each county society can bring about an early response by the profession. Again, how often do physicians of small means, failing support by one community, find it necessary to move to a more desirable neighborhood elsewhere, a change often due to the present-day rapid shifting of populations. Here is where the county society paper may be of real service where help is often urgently needed.

Lastly, a campaign to have our practitioners generally take up rational manual and mechanical treatment methods, as aids to drug remedies, and thus successfully to do away with various new cults now so popular, would also become possible.

Sufficient, it is believed, has here been shown to give a positive "yea" to the question implied in the title of this paper, and a growing future may safely be predicted for the useful little county medical society paper.

22 South Twenty-First Street.

THE SECRETARY AS A FACTOR IN THE SOCIETY *

LUTHER B. KLINE, M.D.
CATAWISSA

There are numerous factors that may be included in the make-up of a county medical society, which will readily appear to the mind of each member present; all of these have a more or less part to do with the character and accomplishments of the organization, but the province of this paper is to consider specially the factor designated by the title.

The prime requisite to a live, aggressive and efficient component county medical society, to my mind, is a wide-awake, faithful and active secretary. If the secretary be faithless and indifferent in the performance of the requirements of his office, the society will suffer accordingly; as is the secretary, so is the organization. The secretary of the society is not simply a recorder, scribe, clerk or amanuensis, who is to take orders and perform accordingly; on the other hand, because of his position and relation to the work he is virtually and practically the executive of all departments and along all lines, including finance, scientific medicine, social activities and the ordinary business affairs.

Is the secretary characterized by vim, force, energy and promptness; are his announcements or calls for the assembling of the medical craft made in an optimistic spirit indicative of assured success, the society will catch the same spirit and be animated and controlled largely by the same qualities. The secretary who would come up to the elevated standard essential to a good and aggressive society must be a leader; he should inspire and arouse enthusiastic support and cooperation among the individual members.

The query may arise, why should this official rather than the president, be the active and forceful leader of the society? There are various reasons that may be given: The president usually occupies the position for a single year, scarcely having time to become familiar with the real, practical work of the organization, and therefore depends chiefly on the secretary, knowing that he is familiar with the various needs and requirements of the society.

The secretary in the receiving or collecting the dues of the members is brought repeatedly in close relationship with the individual members; the scientific program is left with him to be directed and, if possible, to see that it is carried out by the members to whom subjects have been assigned. Whatever the line of work among the members, it falls to the lot of the secretary to serve as the medium of communication and, if necessary, to direct the execution or performance of the work demanded.

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*Read before the Conference of Secretaries at the Scranton Session of the Medical Society of the State of Pennsylvania, Sept. 20, 1916.

In the county medical society bulletin the secretary has added a new instrument of great value for promoting the well-being and efficiency of the organization, which, if earnestly and practically employed, cannot fail to elevate and advance the standard of the work. By the circulation of this little paper among the members each month he has the privilege of presenting to them in a clear and persuasive manner, a résumé of the character of the meetings held and a portrayal of the programs for future meetings, that may perchance awaken in the minds of some of the indifferent and inactive members a desire and purpose to get busy along society lines, and result in their presence at the coming meeting. In addition possibly it may be the means of leading some of this class to become regular attendants and active workers for the best interests of the society. Then, too, the discussion of subjects of general and special interest to physicians, in the columns of the bulletin by the editors, will arouse greater interest in the society and develop more loyal supporters of the code of ethics and things generally for which the great body of medical men should be united. As the papers are also mailed to all physicians residing in the county who have remained outside of the organization, a great opportunity is afforded of keeping before them the benefits to be derived by membership in a component body of the Medical Society of the State of Pennsylvania.

Another way in which much good may result is by the interchange of the papers published by the various county medical societies. Each secretary is thus monthly receiving from many sources new methods, ideas or practical suggestions, many of which he may put into practical use in the work of his own society. When we call to mind that about two thirds of the societies of our state are now issuing a monthly bulletin we readily realize that they may become a potent means for the advancement of the material interests of our profession.

In conclusion, if, as secretaries, we appreciate the importance and responsibility of our office as it relates to the welfare and efficiency of our local societies, let us put forth, if possible, more earnest and practical efforts that the profession in Pennsylvania may be strengthened and united for the uplift of our state organization and the betterment of mankind. To this end we should have the earnest and practical support and cooperation on the part of the members generally; without this our efforts are handicapped and failure will result.

FOCAL INFECTION *

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Until recently focal infection has been considered an occasional cause of systemic disease and has received but little consideration from the profession. Abundance of good evidence now exists, clearly proving that focal infection is a common cause of many diseases. Fifteen years ago there was a general belief that pyorrhea could not produce furunculosis; an abscess from an ingrowing toe nail, endocarditis; nor a tonsillar abscess, so-called articular rheumatism, although polyarthritis of gonorrheal origin was recognized. Four years ago a communication on "Oral Sepsis as a Cause of Systemic Diseases" was received with indifference at a meeting of the Pennsylvania Dental Society.

The experimental clinical observations by Billings and his associates, many of which my own experience confirms, emphasize the importance of the recognition of focal infection as a cause of systemic disease.

Rosenow has demonstrated that ordinarily streptococci, in the presence of oxygen, possess low virulence; when poorly supplied with oxygen, their virulence increases; and when deprived of oxygen, they become most virulent; that under varying cultural conditions one strain of streptococci may be converted into another of higher or lower virulence, and that when they are passed through a susceptible animal virulence increases. Under certain conditions a streptococcus may be transmuted into a typical encapsulated pneumococcus.

Certain strains of streptococci possess an affinity for certain tissues, as, for example, streptococcus viridans for joints, tendons, aponeuroses, muscles, and the endocardium, pericardium or myocardium. When the virulence of the streptococcus is raised, this strain may produce cholecystitis, pancreatitis, gastric or duodenal ulcer, appendicitis, thyroiditis, neuritis, oöphoritis, or severe anemia. By inoculating an animal directly with organisms ob-

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* Read by invitation before the Harvard Medical Society of New York City, Dec. 2, 1916.

tained from an infected gallbladder, removed by operation, he has reproduced the disease, and, with surprising frequency, has obtained the same results in arthritis, endocarditis, gastric and duodenal ulcer, appendicitis, and meningitis; thus proving that certain strains of streptococci possess selectivity for certain tissues or organs of the body. When these original observations are associated with modern concepts of immunity and toxemia, we are able to comprehend some of the relationships of focal infection to constitutional diseases.

The various reports of the Minnesota Division of the Scientific Foundation and Research Commission contain evidence proving that mouth sepsis causes constitutional diseases.

In an editorial published in the November issue of this Journal, reference was made to oral sepsis due to pyorrhea, periapical infection or abscess, and that dead or capped teeth or artificial dentures are frequently septic. Aspiration of periapical abscesses was advised to identify the micro-organism or an autogeneous vaccine; and the value of the Roentgen ray in diagnosis was also discussed.

Inadequate treatment of an apical abscess, or the removal of one dental infection, while others remain undetected, may be followed by recovery from polyarthritis, and several months later by cholecystitis.

Most dentists are loath to believe that septic foci in the mouth are capable of producing constitutional diseases, and often fail to recognize periapical infection, more especially if they have themselves filled the root canals, and no local signs or symptoms of disease are found. In like manner many loose teeth, obviously infected, are allowed to remain for months, even though systemic infection has occurred, because their removal would interfere with mastication. Many capped teeth, bridges and artificial dentures, although mechanically perfect in securing good mastication, are so constructed as inevitably to cause pyorrhea or pyorrheal pockets. It is difficult to make a crown that will fit so accurately as to prevent the entrance of mouth secretions, and some dentists claim that it is impossible. In securing for their patients good mastication, by ingenious and clever devices, the dangers from focal infection have hitherto received but little consideration from dentists.

Periapical abscess is probably due to multiple causes, many believing that it is usually due to improper preparation and filling of the root canal, although there is no doubt that occasionally the infection is hematogenous in origin. The removal of dental pulp with consequent destruction of nerve supply, creates not only a favorable, but a dangerous condition for infection, as the loss of nerve supply prevents pain and other symptoms and signs of periapical abscess or infection. Many local infections in the mouth produce no secondary manifestations.

The tonsils are the second most frequent seat of focal infection, especially in children, adolescents, and young adults, usually causing polyarthritis, pericarditis or endocarditis. They may be primarily diseased, or secondarily infected from a septic mouth, sinus, or nasopharynx. The diagnosis is easy when there is a history of recurring tonsillitis, or when the tonsils are enlarged, with dilated crypts filled with septic or decomposing materials. Tonsils normal in size or atrophied, with no history of tonsillitis, when removed, may reveal an abscess or retained infective material due to occlusion of the crypts, followed by permanent disappearance of so-called articular rheumatism. Partial removal of a tonsil may cause focal infection by sealing crypts and follicles. The adenoid tissue in the supratonsillar fossa may be an unsuspected septic focus. Infective tonsils may be the cause of adenitis or ulcerative endocarditis; and when removed, the secondary focus may then become primary, causing septic manifestations in distant organs.

Suppuration of the antrum, ethmoid, sphenoid, mastoid, or middle ear may act as a focal infection causing systemic diseases. The diagnosis of suppurative sinusitis is frequently overlooked by the practitioner and is usually diagnosed by the specialist, who, however, occasionally fails to recognize septic disease of the ethmoid or sphenoid.

The most obscure focal infections causing constitutional diseases are located in the head, and when in the mouth are often multiple, or may exist simultaneously in the mouth, tonsils or sinuses. Latent septic foci in other regions of the body are less common and are usually more easily diagnosed. Latent septic prostatitis and seminal vesiculitis, although occurring less often than focal infections in the head cavities, are by no means infrequent, and are easily overlooked, chiefly because of the absence of symptoms and the failure of the practitioner to recognize this source of focal infection, with consequent neglect of the physical examination that would reveal the condition.

Success in the prevention and treatment of constitutional diseases, secondary to focal infections, depends upon the diagnosis and removal of the focus or foci of infection. Autogenous vaccines are usually unnecessary unless the focal infection before surgical operations is hastened by personal and general hygiene measures.

The discovery and removal when possible of focal infection before surgical operations, is strongly recommended.

CONCLUSIONS

1. Focal infection is one of the causes of acute and chronic arthritis, periarthritis, arthritis deformans, ostitis, endocarditis, pericarditis or myocarditis, endarteritis, phlebitis, acute and chronic parenchymatous nephritis, cholecystitis, cholelithiasis, gastric and duodenal ulcer, appendicitis, meningitis, thyroiditis, neuritis, oöphoritis, cerebritis, myelitis, ocular diseases and furunculosis, and is the *unrecognized* cause of other diseases.

2. The results of focal infection are due to the variety and varying virulence of the micro-organisms, the duration of the focus, the quantity of micro-organisms and toxins entering the circulation, the rapidity of absorption, the integrity of the tissues and the susceptibility or immunity of the patient. The virulence of the micro-organism, rather than the size of the lesion, is important. Although the exact effects of toxemia are not fully understood, it plays an important rôle in focal infection.

3. The usual location of focal infection is in the head cavities, the order of frequency being the mouth, the tonsils, and the sinuses.

4. The diagnosis of chronic focal infection is sometimes easy, but more often difficult. A common error is to recognize but one focus when more than one exists, and this is especially true of the teeth.

5. Success in the prevention and treatment of constitutional disease secondary to focal infection depends upon the diagnosis and removal of the focus.

6. The discovery that focal infection, wherever situated, even though local symptoms and signs be absent, causes acute or chronic or recurring disease of one or more of the important organs or tissues of the body, constitutes one of the most important advances in medicine in recent years, and makes possible the *prevention* of certain of these diseases.

317 South Eighteenth Street.

Mark it on your calendar NOW: The Sixty-Seventh Annual Session of the Medical Society of the State of Pennsylvania, Pittsburgh, September 24-27.

ALCOHOL AS REVEALED BY MODERN SCIENTIFIC RESEARCH
(C_2H_5OH)

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FOREWORD

For many generations wordy wars have waged around the employment of alcohol in disease. One group of physicians would see apparently beneficial results following its administration; another group would share the opinion which was inscribed on the tombs of ancient Egypt over 7,000 years ago, which referred to wine as "lowering vitality, shortening life, and driving out the spirit from its tenement, the body." Thus has the conflict come down through the ages to our present time, and unbiased opinion must admit that bedside observations of the past have given us as a heritage the therapeutic legend, "Alcohol is a remedy to be employed in disease." These conclusions were reached when physiology was in its infancy, when pathology was confined to consideration of the grosser anatomical changes, when histology and embryology were undreamed of for the reason that the microscope, that scrutinizing eye of science, was far removed from its present-day proficiency. Physiological chemistry had not yet been evolved; psycho-physiological processes had not then entered the arena of investigation. As for instruments of clinical precision, there were none when these earlier, and but few when some of the later, conclusions were reached as to the effect of alcohol on the human economy; the thermometer was not employed to record temperature change; blood-pressure instruments did not afford our medical ancestors the deductions from which we today can profit, nor did the electrocardiograph depict for them the mechanism of the heart in terms of incontrovertible scientific exactitude. The effects of alcohol were merely a matter of opinion, and not a result of scientific deduction. Opinions were tolerable in the darker days of medicine; but in this enlightened age we should base our conclusions on facts.

We have many precedents for unlearning the lessons that were taught in the past. The cow-dung poultice of pre-antiseptic days has now given place to the hot antiseptic fomentation; diphtheritic casts of the bronchi are no longer carried around by physicians and exhibited promiscuously, for modern sanitation has taught the lessons of prompt destruction of diseased excretions; hospital gangrene, that one-time scourge of institutions, has disappeared before modern antiseptic methods; the former ravages of childbed fever have succumbed to the investigations of the microscope which laid bare their provocative bacterial infections; nor is membranous croup despairingly treated nowadays by the blowing of powdered sulphur into the windpipe, but promptly yields itself to that modern scientific triumph of the biological chemist, antitoxin.

In view of such complete reversal of these and many other opinions formerly held, and in view of the advances made in the sciences of today, let us approach the study of alcohol with an unprejudiced and dispassionate mind to ascertain whether we have any preconceived ideas on that subject which now need revision. It becomes us not to let the dust of therapeutic legend blind our professional eyes to a perception of modern scientific facts. To proceed in logical order, let us first inquire of the chemist.

What is alcohol? (C_2H_5OH).—It is the waste matter thrown off by a fungus, the *Mycoderma cerevisiæ*, during its process of taking the oxygen necessary for its existence from grape sugars and from starches that are converted into sugars.[1] When the saccharine solutions in which the mycoderma lives are so polluted by its own excretions that said alcoholic contamination amounts to 12 per cent. of the total bulk, the organism ceases to thrive; when the alcohol content reaches 14 per cent., the fungus is literally poisoned by its own excretions; it is no longer able to propagate its kind; it dies, and in the dying decomposes and thus further swells the alcohol per cent.

How does alcohol get into the system? As a rule, it is taken in the form of beverages. Let us therefore now consider the alcohol content of solutions commonly swallowed.

The following table[2] is of interest in affording the physician an opportunity to estimate the amount of alcohol in a given quantity of liquor. For example, "An ounce of alcohol" conveys little meaning; but it will be seen that "A glass of whisky" (holding approximately 2½ ounces) can be estimated from this table to contain over an ounce of alcohol.

Name of Vehicle	Alcohol Content:— Av., %	May Range from
French claret	8	6-12
French white wine	10.3	9-12
German Rhine wines, Moselle, etc.	8.7	7-12
Sherry	17.5	16-20
Madeira	15.4	15-16
Champagne	10	8-11
American champagne	8	6-10
American red wine	9	6-12
Sweet Catawba	12	10-15
American lager beer	3.8	1-7
Vienna lager beer	4.7	3-5
Munich lager beer	4.8	3-5
English ale and porter	5	3-7
Hard cider	5	4-8
Brandy	47	40-50
Whisky, American best	43	41-48
Whisky, American common	35	25-43
Whisky, Scotch, Irish	40	36-43
Rum	60	40-80
Gin	30	20-40

Other constituents of these fermentations seem to vary quite as fancy dictates. Chemists inform us that adulteration of liquors is the rule, not the exception.[3] Color is frequently given by coal tar derivatives; flavor may be added by glycerin or cheaper glucoside substitutes; creosote (as in Scotch whisky) may be either natural or acquired; tannic acid, benzoic ether and arsenous acid have been variously detected by the analytical chemist.

What is the effect of alcohol when taken into the system? Before considering the physiological action of the substance on individual organs, let us first consider the latest conceptions of a general systemic effect, viz., *alcohol as a food*. The undoubted fact that alcohol is oxidized in the body[4] has given rise to frequent statements in medical literature that "starches are oxidized in the body as foods; alcohol is oxidized in the body; therefore, alcohol is a food." The syllogism fails to recognize that all bodily oxidations are to be classified into two groups, viz., active oxidations, which take place in the active tissues, muscles, nerves and glands, proportional to normal activity; protective oxidations, which take place in the liver, wholly independent of tissue activity. In the latter category we find the oxidation of uric acid, zanthine bodies, leucin, tyrosin and the amido acids. As W. S. Hall[5] succinctly states it:

> "If the oxidation of alcohol in the liver belongs to the second category, the following consequences would be found: First; the ingestion of alcohol would be followed by its early oxidation in the liver. Second; if the oxidation capacity of the liver is limited, this capacity may be overloaded by exceeding the physiological limit of alcohol. Third; if the oxidation capacity of the liver is taxed nearly to its limit by the oxidation

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[1] Oppenheimer: Die Fermente und ihre Wirkungen; Leipzig, p. 276.

[2] As published by the Committee of Fifty.

[3] Vance Thompson: Researches; Moffat, Yard & Co., New York.

[4] Experiments of Prof. W. O. Atwater of Wesleyan University.

[5] Winfield Scott Hall, Ph.D., M.D., F.A.A.M., Medical Times, Feb., 1916.

of other toxic substances such as uric acid, xanthins, etc., then the ingestion of alcohol may seriously interfere with this protective oxidation by overtaxing the capacity. Fourth; if the oxidation capacity is overtaxed, an excess of uric acid, xanthin bodies, and other toxic substances will get by this portal and reach the active tissues of the kidneys. Now, all of these things take place, so we are forced to the conclusion that *the oxidation of alcohol is a protective oxidation.* ALCOHOL IS, THEREFORE, A TOXIC SUBSTANCE AND NOT A FOOD IN ANY SENSE."[6]

That the liver actually wears itself out in waging battle with alcohol, was proved when Bellevue Hospital[7] autopsied 125 chronic drinkers: 41 per cent. had hob-nail liver, and 77 per cent. had fatty degeneration of the liver.

PHYSIOLOGICAL ACTION

Absorption.—From mucous membranes one drop of the substance is absorbed with sufficient rapidity to produce a reflex sympathetic influence on the central nervous system.[8] Applied externally, its local irritant effect on the cutaneous system in solutions of over 50 per cent. is characterized by ensuing redness, itching and a sensation of warmth which accompany vasomotor paralysis. It acts as a solvent on the sebaceous secretion, which is the only protection of the skin, thus opening up another avenue for its entrance into the system. It dehydrates the integument as readily as it dehydrates tissues used in laboratory experiments. Applied in open wounds, proteins are precipitated; in stronger solution, actual corrosion of tissues takes place.

Nervous System.—As the substance is absorbed it causes a solution of the lipoid constituent of nerve cells, which lessens and finally abolishes the functional activity of the cells, according to Meyer and Overton. It has been found that those parts of the brain in which the higher intellectual centers reside are especially rich in lipoid cell constituents; hence they are the most readily attacked and destroyed by the solvent. This seems to be a satisfactory explanation of the notorious action of alcohol on the higher intellectual centers, whereby the finer instincts are submerged and the individual is swayed by the grosser appetites and concepts.

Mental processes: It has been demonstrated[9] in human experiments that (*a*) moderate daily drinking markedly affects the capacity to add numbers; (*b*) moderate daily drinking profoundly affects the free association of ideas (e. g., the word "table" should suggest dinner, chair, plate, knife, fork, cup, coffee, etc.; under 13 daily doses of alcohol this "free association of ideas" was reduced 27 per cent.); (*c*) moderate daily drinking greatly retards ordinary memorizing.

Nerve reflexes: Dr. W. R. Miles, of the Carnegie Institute of Boston, is now conducting a series of string galvanometer tests on totally-abstaining human subjects who are unconscious of the fact that disguised alcohol is the drug which is being administered; a study of the galvanometric records which have been taken of the eyelid reflex, eye reaction time, and of the patellar reflex proved to our abundant satisfaction that 1 ounce (30 c.c.) of alcohol (*a*) lengthened reflex latency with a decrease in amplitude of movement; (*b*) created slower reactions; (*c*) gave slower coordinated movements; (*d*) rendered the nervous system less sensitive to stimulation.

It has been established[10] by investigations along similar lines that in moderate users of alcohol the knee jerk is decreased 10 per cent.; the protective motion of the eyelids was delayed 7 per cent.; the sweep of the eyelid was decreased 19 per cent.; response of the eye to stimulus was slowed 3 per cent.

Respiratory System.—As it comes in contact with the mucous membrane of the mouth, the irritant excites a number of reflex stimuli which act on the respiratory center of the brain; respiration is temporarily quickened. After absorption, however, the respiratory center is depressed; witness the slow and labored breathing of acute alcoholism. "Death from toxic doses is due to paralysis of the respiratory center in the medulla."[11]

Muscular System.—Upon muscular tissues the ingestion of one ounce of alcohol produces a primary stimulating effect; within half an hour this stimulation wears away and the secondary depressing effect which ensues reduces muscular activity below par. Fresh doses of alcohol given at this time show only a slight stimulating action. Thus the muscular work done under alcohol, according to Abel, is less than the muscular work accomplished without its use. If skill be an index of muscular control, it is interesting to note that in the Swedish army the men averaged 24 hits out of 30 shots on non-drinking days; on drinking days they averaged 3 hits out of 30 shots.

In muscular fatigue and exhaustion alcohol seems to increase the ability for continued muscular effort. This is due to its anesthetizing effect, as determined by Forster; it simply diminishes or abolishes the sense perception of fatigue. This observation would seem to explain the continuance of muscular strain which alcohol often affords; it does not stimulate — it narcotizes, and the muscles, centrally deadened to a perception of their own fatigue, may be driven to further efforts under the narcotic. Hence we see the reason for the utter muscular exhaustion which follows a period of acute alcoholism.

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[6] The italics and capitals are not ours.

[7] Med. and Surg. Report Bellevue Hospital, N. Y., Vol. 1.

[8] David Martin: University of Vermont Medical Monthly.

[9] Krapelin and Kurz: Psychogische Arbeiten, Vol. III, p. 417.

[10] Dodge and Benedict: Neuromuscular Effects of Moderate Doses of Alcohol, published by the Carnegie Institute, Washington, D. C.

[11] David Martin, University of Vermont: Effects of Alcohol, etc.

Circulatory System.—It has been shown by Dodge and Benedict[12] that the general depressant effects of alcohol affect the vagus (inhibitory) nerves of the heart rather than the sympathetic (accelerator) nerves. Depression of the inhibitory nerves of course results in increased heart action; but larger doses, as shown by the electrocardiograph, act as direct and powerful cardiac depressants, weakening first the auricular then the ventricular systoles and cause a varying degree of distention in both chambers. Of the 125 autopsies performed at Bellevue on confirmed alcoholics, 90 per cent. had heart disease. Blood pressure investigations suggest a diminution in the output of blood, following an initial rise.

Blood Changes.—Fillinger tested the resisting power of the red blood cells in two apparently healthy young men to whom he administered champagne. The resisting quotient before champagne was 88; after it was 43. Albott and Gildersleeve have also shown that it lowers the opsonic index, thus establishing that alcohol reduces the resisting power of the blood against bacilli.

Resistance to Infection. — "Even in small dose, alcohol taxes the oxidation capacity of the liver to the limit, and thus leaves the body defenseless against bacterial invasion and other toxins." This conclusion must have already been reached by the reader under "alcohol as a food" as previously recited in this article. Once again do recent laboratory conclusions confirm the clinical experience of a multitude of physicians who have observed that pneumonia, tuberculosis, typhoid fever and other infections frequently follow in the wake of alcoholic beverages.

Digestive System.—In contact with the stomach wall, alcohol irritates the gastric membrane and thus causes a secretion of gastric juice, which, however, is deficient in peptic elements and according to Bleim, "soon degenerates to a mucoid flow." A mucoid flow cannot of course digest anything — a fact corroborated by the finding of chronic catarrh of the stomach in 50 per cent. of the previously mentioned 125 autopsies performed on confirmed alcoholics at Bellevue Hospital.

Urinary System.—The diuretic action of a pint of beer is no greater than a pint of water. Large quantities of alcohol, however, stimulate diuresis by a local irritant action.

When quantities are taken in excess of the oxidizing power of the liver, the effect of said excess on the delicate secreting tubules of the kidney is revealed first as the glomerulonephritis and later in the profound kidney degenerations of alcoholics with which clinicians are familiar.

Sexual System. — The trite conclusion of Broderick is sufficient: "alcohol creates unwholesome sexual appetite. It stimulates desire and hinders its fulfilment."

Temperature.—Alcohol causes a fall in bodily temperature by increasing the surface radiation of heat and by a depression of the thermic center in the medulla. The fallacy of "a drink of whisky to keep me warm" thus becomes apparent.

Alcoholic Sleep.—Sleep, it must be remembered, is a normal recuperative process of nature; during sleep the living substance of bodily cells absorb the oxygen necessary for re-creation; the balance between building up and breaking down is restored; recuperation takes place. The physiological experiments of Verworn of Bonn have shown that the conditions which simulate sleep and which are brought on by the use of alcohol, ether, chloroform and other narcotics is not sleep at all; it is a narcosis. During narcosis recuperation is hindered, because the intake of oxygen has been proved to be either checked or entirely suspended. Bedside experience is again confirmed; where is one of us who has not noticed the brilliant improvement in patients which is brought on by a good night of sleep, in sharp contrast with the dull, drowsy and apathetic morning which follows narcosis!

Alcoholic Fat.—The increase in bodily fat with a consequent increase in size which is sometimes to be observed in the user of alcohol, has not been made the subject of any reports that we are able to find in medical literature. To ascribe this increase to the popular street conception that it represents the stored-up food value of alcohol, or to the equally fallacious idea that alcohol so increased the digestibility of foods that a greater bulk is assimilated and thus made available for future energy, are two ideas which cannot long concern us. We have seen that alcohol is not oxidized as a food: it is oxidized as a toxic substance; it does not increase the digestion of foods: it retards digestion. How then, may we account for the increase in fat which is undeniably present in many users of alcohol? True, it is not a firm healthy resistant fat; often it is a soft, yielding, "puffy" fat that seems to almost slip out of your hands as you grasp it; it disappears with amazing rapidity before the onslaught of acute disease. Surely this is not a normal fat! We already know that alcohol enters into loose chemical solution with fatty substances; it would therefore seem logical to assume that if entered into combination with one fat cell, the diameter of that cell would be increased; and if it combined with countless numbers of fat cells, the diameter of the tissues and of the man would consequently be increased. Future investigators who have the skill and resources to make exhaustive studies of the various fats which are to be encountered at surgical operations may either confirm this theory or supplant it with a better one.

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[12] Loc. cit.

THERAPEUTIC USES OF ALCOHOL

In the revered textbooks of our college days we find alcohol recommended as a useful drug in cardiac failure, diabetes, tuberculosis, fevers, etc. In view of the deducductions which can be drawn from the preceding discussion of the physiological effect of alcohol; in view of the fact that pharmacologists classify it with the hydrocarbon narcotics (ether, chloroform, chloral, etc.), and remembering that toxicologists, such as Blyth, list it with muscarin, morphin and phosphorus, we may logically reach the following conclusions regarding its use in the above mentioned conditions.

Cardiac Failure.—Alcohol is not the remedy of choice in cardiac failure. Its initial effect of increasing the heart rate is fleeting and is soon followed by a period of depression which may actually prove fatal. Only under the circumstances that it is the only available remedy at hand is its employment warranted in heart failure.

Diseases Characterized by Tissue Waste—Tuberculosis.—Of patients addicted to the use of alcohol 29 per cent. improved, 21.8 per cent. died; among abstainers 42 per cent. improved and only 9.9 per cent. died. "From the facts before us," says the Report of the Phipps Institute, Philadelphia, "alcohol is exceedingly dangerous to the tuberculous. The only safe rule is to abstain altogether."

Diabetes.—"Whisky is no essential part of the treatment of diabetes and there is no proof that it does good even in the minority of cases where it is used," writes Dr. Frederick M. Allen of the Rockefeller Institute, whose studies of this disease give to his utterances the voice of authority. He continues, "Our treatment represents abandonment rather than advocacy of the use of whisky, since you will find that alcohol was used very freely in the treatment of severe diabetes heretofore." Let us now step from the diabetic clinic into the nutrition laboratory of Dr. W. R. Miles at the Carnegie Institute, Boston,[13] and learn that "three healthy subjects were given for a limited time a carbohydrate-free diet, that is, they were put experimentally in a condition similar to that of the diabetic, who cannot tolerate starch and sugar. The acidosis and the disagreeable feelings characteristic of the diabetic appeared in these healthy subjects as a result of the withdrawal of the carbohydrates. Alcohol given to the subjects on this diet, in dosage comparable to that used for clinical purposes, did not stop the progress of the acidosis or show any signs of stopping the destruction of tissue due to the absence of the fuel foods. Coincidental with its administration there was further increase in the oxygen consumption, and in the disagreeable subjective symptoms." "In no instance," the report emphasizes, "did the alcohol have any apparent inhibiting effect on the development of the acidosis. In fact, the acidosis as measured by the various indicators became most severe on the day on which the whisky was taken."

Support in Exhaustive Fevers—Pneumonia.—The statistics of Osler and McCrae[14] show that in abstainers, the death rate from pneumonia is 18.5 per cent.; the death rate of immoderate drinkers is 52.8 per cent. In other words, alcohol adds tremendously to the toxemic peril of pneumonia.

Typhoid Fever.—"The ability of the blood serum to destroy typhoid bacilli was stronger in abstainers and in those who did not use alcohol regularly than in the habitual drinker."[15] In the larger hospitals alcohol is no longer administered as a routine remedy during typhoid fever. Its use has been abandoned.

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[13] Jour. of Medical Research, May, 1916.

[14] National Temperance Quarterly, Dec., 1911.

[15] H. W. Reich, University of Munich.

As a Preventive of Disease.—Statistics of sickness benefit societies show: (*a*) Drinkers between 25 and 44 years of age were on the sick list 2.7 times as often as insured men in general. (*b*) They stayed sick 2½ times as long as the average insured man. (*c*) Death carries off between two and three times as many drinkers as other insured men.

Toxic Conditions such as Snakebite, Delirium Tremens, etc.—We will dispose of ancient folklore in the above conditions by simply asking whether it is desirable therapeutics to add to any toxic condition the additional burdens of the toxemia induced by the administration of alcohol?

Persistent Vomiting.—Alcohol by its anesthetic effect on the peripheral nerves of the stomach, may control some forms of vomiting: by its effect on the vomiting center in the brain it as often induces the most distressing retching.

For Nursing Mothers.—Concerning the use of alcohol as a galactagogue, several of the more prominent pediatrists have put themselves on record as follows:

> "I do not think it desirable for nursing women to drink beer. It is undeniable that beer in many cases does increase the flow of milk; but there are much better ways of promoting the secretion of milk than by drinking beer—good nutritious food, milk, cocoa, are much more efficacious, cheaper, and are open to no objections."—L. Emmett Holt, M.D., College of Physicians and Surgeons, New York City.
>
> "Alcoholics are not necessary to a nursing mother. The best galactagogues are good food and vigorous nursing by the child."—John Zahorsky, M.D., Washington University.
>
> "There has never been any evidence that these liquids have any such effect. Good plain food, regular exercise and sufficient rest and sleep are almost all that can be done to conserve the milk of the nursing mother."—Henry Dwight Chapin, M.D., New York Post-Graduate School.
>
> "I do not believe it (malt liquor) increases the milk supply in the majority of instances."—Fritz B. Talbot, M.D., Harvard Medical School.

Employment in Surgery.—The following utterance at the Royal Sanitary Congress Breakfast in Exeter by Sir William J. Collins, D.L., J.P., M.D., F.R.C.S., is from a surgeon of vast experience and ripened judgment:

> "I find that in twenty-five years I have prescribed rectified spirits of wine exactly twenty-seven times. During that period more than 10,000 inpatients must have been under my care—many more thousands of outpatients, and I have performed over 6,000 operations. You can therefore believe me when I say that I have come to regard alcohol, in surgical practice, as but a fly upon the wheel, and I am ready to undertake an operation of any magnitude without the assurance that a brandy bottle is at hand."

SUMMARY

1. The therapeutic employment of alcohol by physicians is based on traditions alone, which traditions misinterpreted certain physiological reactions; these reactions were not properly understood for the reason that our predecessors had no instruments of clinical precision available for investigations and no modern laboratory facilities at hand.

2. Alcohol is not a food: it is a narcotic poison of such diversified physiological action on the various structures of the human body that its employment is unwarranted, unscientific and unsafe.

3. In the light of recent studies, alcohol possesses no physiological action which cannot be more promptly and more safely secured by a proper selection of legitimate drugs.

4. No rational basis exists for the employment of alcohol in medicine.

323 South Eighteenth Street.

THE COMMITMENT OF THE INSANE IN THE STATE OF PENNSYLVANIA*

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There are several methods provided by the Commonwealth of Pennsylvania by which a person may be committed to a hospital or house licensed to receive the insane: (1) On the sworn certificate of two physicians that the person is insane, when accompanied by the request of a "person"; (2) by order of the court, (*a*) in criminal cases, (*b*) after a hearing before committee of three; (3) by voluntary commitment.

The ordinary or usual form of commitment is the first named and under the law of 1883. This law provides that a person may be detained (that is, held against his will or deprived of his liberty) in a house or place where insane are detained on the sworn certificate of two physicians when accompanied by the request of the person at whose instance he is received. The law makes no requirement as to who this "person" who makes the request shall be.

Section 20 of the Lunacy Act of 1883 reads as follows:

> No person alleged to be insane shall be received into any house for treatment or for detention, unless

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*Read at a joint meeting of the Pittsburgh Neurological Society and the Philadelphia Psychiatric Society, held in Philadelphia, March 9, 1917.

at the time of such reception the person or persons at whose instance the person is received, shall, by a writing signed, state that the person has been removed and is to be detained at his or her request, under the belief that such detention is necessary for the benefit of the insane person.

Section 21 reads as follows:

> There shall also be delivered to the person or persons having supervision or charge of the house a written statement of the following facts relative to the person to be detained, signed by the person or persons at whose instance the insane person has been removed and detained, or if the facts be not known, it shall be so stated:
>
> 1. The name.
> 2. Age.
> 3. Residence for past year or for as much thereof as is known.
> 4. Occupation, trade or employment.
> 5. Parents, if living.
> 6. Husband or wife.
> 7. Children.
> 8. Brothers and sisters and the residence of each of these persons.
> 9. If not more than one of these classes is known the names and residences of such of the next degree of relatives as are known.
> 10. A statement of the time at which the insanity has been supposed to exist, and the circumstances that induce the belief that insanity exists.
> 11. Name and address of all medical attendants of the patient during the last two years.

Thus it will be seen that the "person" who signs the request for detention may be almost any person, although in practice I dare say the request is usually signed by a near relative. And it will be noted that the requirements for information to be furnished by the person requesting the commitment is, to say the least, meager. The statement "of the time at which insanity has been supposed to exist and the circumstances which induce the belief that insanity exists" is, to be sure, quite comprehensive. But it is very unlikely that the average person will give as much information to this general question as if it were divided up into a dozen questions which would be answered.

It is further to be noted that the person who signs the request for admission of the insane person is not required to take oath as to the truthfulness of his statement, a requirement which is exacted of the physician signing the certificate.

The law further provides that the physicians signing this certificate must have been in active practice of medicine for at least five years; they must have separately examined the person alleged to be insane, and state that the "disease" is of such character which in their opinion requires that the person shall be placed in a hospital or other establishment where insane are detained for care and treatment, and that they are not related by blood or marriage to the person alleged to be insane, nor in any way connected, as medical attendant or otherwise, with the hospital or other establishment in which it is proposed to place such person.

The certificate must have been made within one week of the examination of the patient, and within two weeks of the time of admission, and must be sworn to or affirmed before a judge or magistrate "who shall certify to the genuineness of the signature and standing and good repute of the signer."

The person in charge of the house where the patient is detained must enter in a book kept for that purpose all facts stated on the certificate or document, and he must within twenty-four hours of the reception of the patient examine and reduce to writing the result of such an examination and record same; he must discharge the patient if he deems detention unnecessary. At the time of examination he must inform the patient that he has the right to interview or communicate with friends; and a statement concerning the patient must be sent to the Lunacy Committee within seven days of the time of reception of the patients. Section 27 provides that outside physicians may attend the patient "for all maladies other than insanity."

Section 34, as amended by act of May 10, 1893, Section 1, provides for voluntary commitment of patients "who may be suffering from nervous disease threatening mental disorder," for a period of one month or less by agreement which shall also specify the time signed at the time of admission. This shall be renewed at the end of one month; the signing must be done in the presence of witnesses.

Section 38 seems in an awkward way to provide for emergency commitment; at least, it states that "the judge trying the case shall certify that said officers and managers had good reason to believe that such receiving and detention were necessary for the safety of the lunatic or other persons, and delay required for complying with this requirement would have been injurious to the person detained, and that there is no reason to believe that they or any of them were actuated by improper motives" then the "penalties imposed for violation of this act shall not apply to officers and managers of places for detention of the insane if acting in good faith they receive patients without papers required by law, provided that within forty-eight hours after commitment the law shall have been complied with." So it would appear that this exemption is allowed only after the managers have been sued in court. A less harsh method for an emergency can surely be devised.

Thus it will be seen that under the law of this commonwealth a citizen may be deprived of his liberty, held and detained against his will without a notice or hearing or an order of court in a hospital for the insane on the sworn certificate of two physicians accompanied by request of a "person" who makes certain information regarding supposed insane person, but who is not required to take oath to this statement; that provision for emergency commitment is to say the least inadequate.

Now it is time, I think, to ask some questions regarding this commitment. Is it really legal under the law of our land for a person to be deprived of his liberty by request of a "person" supported by the sworn certificate of two physicians that he is insane? The decision of Judge Thomson in the case of Walters vs. McKinnis[1] answers this question in the negative. In this case a woman by the name of Walters was commited to Marshalsea on Nov. 28, 1914, and there detained and confined. She alleged in her petition for release that no notice was given her or her friends of the proceedings to adjudge that she was a lunatic, and that she was adjudged a lunatic and confined in an asylum without a hearing and without opportunity to defend herself. She alleged in her petition that her rights guaranteed to her under the Constitution of the United States were therefore denied her; for the Fourteenth Amendment provides that no person shall be deprived of life or liberty without due process of law. The court granted the petition and released this patient. His words, in part, were as follows: "The court is not passing here on the question of the relator's sanity, but on the question of the legality of the proceedings by which she is confined in the asylum, and inasmuch as I am of the opinion that her incarceration is in violation of her rights under the National Constitution, I do not feel at liberty, under the facts and the law of the case, to deny her prayer for relief addressed to a Federal tribunal."

And if the Fourteenth Amendment of the United States did not exist one would think it ought to exist. But there it stands and tells us that no one in this country may be deprived of his liberty except by due process of law and with opportunity for defense. The commitment law of this state does not provide for such opportunity for defense.

Pennsylvania, therefore, in my opinion needs, first of all, revision of the Lunacy Law of 1883, which shall require that every commitment, except those which are voluntary shall be by a judge after the person stated to be insane shall have been given a reasonable opportunity to present a defense and resist the charge.

There is another reason why the law should be so amended. As it exists, physicians may be sued for making commitment, and as a matter of fact, I have knowledge of four or five such cases in Western Pennsylvania, in two or three of which I have been actively interested as a witness. With the commitment made by the court then I apprehend the physicians signing the certificate would do so simply as a witness and not be subject to action for damages.

Looking elsewhere, one finds that very generally in our progressive states the insane as a matter of fact are commited by due process of law — i. e., by a court after a hearing. I have taken the trouble to examine the Lunacy Law and commitment papers in a number of states, and I have formed the opinion that those of Massachusetts, New York and Illinois are the most comprehensive and carefully drawn and modern, the first named being in a few respects superior. Let me direct your attention to the Massachusetts law.

Except in cases of voluntary commitment, the Massachusetts law provides that in all cases commitment shall be by order of a judge. The regular and ordinary commitment calls for a rather comprehensive, but not very long statement on the part of the person who makes the request for commitment. Then the sworn certificate of two physicians who have been in practice of medicine at least three years is next required. These papers must be presented in court before a judge who may commit the patient forthwith; or he may demand additional medical testimony. He may appoint a third physician to make a report to him. If demanded, a jury trial must be held, or the judge of his own motion may direct that one be held.

Thus it will be seen that all the rights guaranteed a citizen under the Federal Constitution are provided for. The certifying physicians must have examined the alleged insane person within five days of signing the certificate, and they must state that the person is insane and a proper subject for treatment in a hospital for the insane and they must further state in writing the facts on which their opinion is based. Then the insane person must be taken to an institution within ten days after he has been adjudged insane by the court. The superintendent of the institution to which the insane person has been committed must within two days after reception of the patient send notices to all persons whose names appear on the statement, and to any two other persons whom the patient may designate. The judge may in his discretion summon a jury of six to try the question of insanity in any case.

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[1] Pittsburgh Legal Journal, January, 1915, p. 52.

A very important feature in the Massachusetts law is the provision for emergency commitment. An insane person may be received in an institution for a period of five days on the certificate of two physicians. Before the expiration of five days he must be committed in regular way or else discharged.

A person may be committed by a judge on the certificate of two physicians who swear that his mental condition is such that he ought to be under observation. In another section provision is made for temporary care of a patient, not exceeding seven days, on the application of his natural or legal guardian or on regular application of captain of police and several other officials specified. "The person applying for such commitment shall within seven days cause the patient to be committed, provided he does not sign a request to remain under provision of voluntary commitment act." Provision is also made for voluntary commitment on the part of persons whose mental condition is such that they are competent to make such application. "Such persons shall not be detained for more than three days after having given notice in writing of their intention or desire to leave the institution." I may mention here that in the inebriate act of Massachusetts provision is made for voluntary commitment which is lacking in the Pennsylvania law.

One gathers the impression that the Massachusetts law conforms to all legal requirements and fully safeguards the rights of those who are committed; that it is elastic in that it provides for various emergencies and conditions which may arise; then, too, it appears to be modern and coherent. Personally I can hardly see how Pennsylvania can do better than to copy the Massachusetts law, for it is full, comprehensive and contains many more desirable provisions than those to which I have referred.

Turning now to the commitment laws of our state, they have been drawn at various times and they overlap each other in a number of respects. In some cases provisions are obscure and oftentimes the language is loose and not carefully drawn. The laws are antiquated and lacking in coherence, elasticity and comprehensiveness; and especially would I fault them in that they do not properly provide for the liberty of an individual as guaranteed him under our Federal Constitution; and too much responsibility is placed upon the physicians signing a commitment. They should, in my opinion, be thoroughly revised and codified. All commitments except those which are voluntary, should be by the court. Requirement should be made that the person signing the request for admission should be a relative or county official and detailed statement should be *required* of him and it should be *sworn to;* the physicians signing the certificate should be required to state definitely and specifically in writing and in some detail the facts upon which they base their opinion; the individual case should be heard before a judge who should be required to visit the insane person when he thinks it necessary and empowered to demand additional testimony and to order a jury trial of his own motion and required to do so on the request of a relative or county official. At the same time ample provision should be made for emergency and temporary commitments and for observation of criminals suspected of being insane.

Examination of the laws governing criminal cases reveals many defects; and I am of the opinion that the entire lunacy law should be revised and codified. But if this seems now not advisable or expedient, then let us have, with as little delay as possible, and after most careful consideration, a revision of our law governing ordinary commitment of the non-criminal insane.

Postscript.—Acting on his conviction expressed in this paper, the writer requested Hon. Chas. Kline to introduce a bill into the Assembly providing for a commission of five, two of whom should be experienced lawyers and two experienced physicians, to examine our Lunacy Laws and those pertaining to the feebleminded, inebriety and epilepsy to revise and codify them and offer a new law for the consideration of the Assembly two years hence. Senator Kline presented this bill, known as No. 740 in the Senate. It received the approval of a number of medical men interested in and conversant with the subject, and, so far as I am aware, it received no opposition. The bill passed both houses of the Legislature. The Governor vetoed it for the reason that no appropriation was provided for the expense of the commission, holding this to be unfair to both the commission and to the commonwealth, and foreseeing that later on bills for expenses would be presented to the commonwealth. The original bill called for an appropriation, but this was later withdrawn for fear the bill would die in the appropriation committee, the thought of the writer being that the necessary expense of the commission could be collected by private subscription.

The need to revise our laws was further emphasized last spring by the fact that First Assistant District Attorney Dunn of Allegheny County, realizing the need in a practical way and the many deficiencies of our present law, himself, independently, caused to be introduced a comprehensive bill, codifying and revising our lunacy laws. After conference, Mr. Dunn withdrew his bill in favor of Senate Bill No. 740.

Westinghouse Building.

Note by the Editor.—The following was clipped from a communication, dated Pottsville, March 15, 1917, in the Philadelphia Press, and will be of interest in connection with the above paper:

In habeas corpus proceedings before him today, Judge Bechtel decided that the law of 1895, giving power to take persons into custody upon affidavits of two physicians that they are insane, is unconstitutional. He declared the law is a violation of the fourteenth section of the Constitution of the United States, which provides that no person shall be deprived of liberty without due process of law.

Court decided that every person charged with insanity has a right to a hearing before a commission, comprised of a lawyer, a doctor and a layman. If physicians had the power to send persons to the insane asylum without a hearing, that power might sometimes be abused, the Court decided.

A similar decision was made lately by the United States District Court. Under this decision many persons are illegally in custody in the county asylum. In the petition of Elizabeth Kopko, which brought about the decision, the Court ordered she be given a hearing by a commission.

THE PROGNOSIS, SEQUELAE AND COMPLICATIONS OF INFANTILE PARALYSIS

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In the prognosis of acute anterior poliomyelitis, one should be guarded as to the outcome; not only because the extent of the injury to the spinal cord or to other structures cannot be definitely determined during the acute course of the disease, but also on account of the many unforseen complications that may arise, as well as the possible unlooked for sequelae that may later develop.

Again, our prognosis should be guarded, because oftentimes the clinical manifestations and symptoms are not in keeping with the pathological findings, and often apparently contradict each other; so that, in a case that shows only mild symptoms, often there exists severe lesions in the cord elsewhere which after the acute stage is passed, or later, may give rise to serious results. Flaccidity of muscle, with later atrophy from nonuse, is perhaps the most frequent sequela. This, of course, calls for scientific massage treatment and electricity.

Depending on the degree of involvement, either weakness or paralysis of one or more groups of muscles is the usual end-result of poliomyelitis. In involvement of the leg, foot-drop is very frequent, due to contraction of the muscles of the sole of the foot. Here orthopedic treatment, such as splints, exercise, massage, etc., is indicated. In facial paralysis, when the cheek and eye muscles are involved, puffiness of the cheek, elevation of the angle of the jaw, salivation, contractions of the normal side and strasbismus are the results. On account of poor blood supply and lack of exercise, bed sores are very frequently met with, and are early to be guarded against, as they make a very slow recovery. When both lower limbs are completely paralyzed, occasionally there develops incontinence of urine, and involuntary defecation.

Diphtheria and meningitis are often seen associated with poliomyelitis, and occasionally scarlet fever. Pneumonia often develops where a child has a history of bronchitis or rhinitis.

Just how long the weakness, flaccidity or paralysis, complete or partial, that follows from infantile paralysis will continue, is an open question; but usually, after a month from the onset of the weakness or paralysis, partial use of the affected part is noticed; but complete recovery is not effected for many months after this time, say, six or eight months; and very often complete restoration to the normal never occurs.

In conclusion, let me say that when we recall that there was nearly a 30 per cent. mortality rate in Philadelphia and about 23 per cent. in New York during the last epidemic, and Dr. Meltzer of New York, in his reprint in the *New York Medical Journal*, claims that "only about 50 per cent. of all cases, including abortive types," show permanent and complete recovery; I repeat, when we recall these sad facts, there is but a small percentage of cases left, about 20, in which the disease does not leave baneful and irremediable effects; and we are obliged to admit that the prognosis, as regards complete recovery, is by no means a favorable one. It means, gentlemen, that there will be about 350 little children who will be crippled for life in Philadelphia, and about 2,000 in New York as the result of this last epidemic—a great economic loss, indeed. And we anxiously await the day when, through the efforts of scientific research and as the result of much sad experience and justifiable experimentation, poor suffering humanity will be furnished with some satisfactory remedial agent; the saddened hearts of loving mothers and devoted fathers will welcome the day when the terrible slaughter of their innocents will be no more; and the medical world can proclaim to the entire universe, as did Caesar of old, *veni, vidi, vici* — I came, I saw, I conquered.

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All communications should be addressed to the Pennsylvania Medical Journal, Athens, Pa.

The Medical Society of the State of Pennsylvania does not assume responsibility for any statements or opinions published in this Journal

Athens, Pa., August, 1917

OUR LEGISLATIVE EXPERIENCE

It is hard for one who has been in more or less close touch with legislation to write a satisfactory history of that legislation. There are so many things that transpire in political moves, which should be known in order to fully understand the narrative and yet are incidents that cannot be repeated in public, much less be put into print. The last session of the legislature was an unusually long one (six months) the second longest in fifty years, and generally acknowledged to be productive of less valuable legislation than any session within a decade. Petty political wrangling was its chief feature throughout.

To establish a board of optometry was accomplished without much difficulty, the medical profession apparently indifferent, but without influence. A more drastic antinarcotic bill, which I believe will not place any undue hardship on the medical profession, was passed in an effort to stamp out a great evil. It was clearly brought out in the course of discussion that, in the abuse of these drugs, weak and discreditable members of our profession place a burden on all practitioners. The drugless healers made a strong campaign for recognition and failed, but it is a lesson to the medical profession how much agitation a few earnest, hard-working individuals can arouse. The antivivisectionists were as strong as ever and succeeded in blocking good legislation in the interests of medical teaching and research. A health insurance bill was introduced, but with protests from your committee did not leave its legislative committee.

The medical profession was especially interested in the amendments to the Workmen's Compensation Law. In these efforts we entirely failed, notwithstanding the support and efforts of Mr. James F. Woodward, the chairman of the House Appropriations Committee. We are grateful for the efforts of Mr. Woodward who has proved a friend of hospitals and medical interests. It was early recognized that there would be powerful opposition on the part of corporations and employers to any change in the law. The sentiment among members of the House and Senate was against any change; the law being new, should be tried out a while longer. An almost universal reply from legislators, when told that the medical profession was unjustly treated in the Compensation Law, was that the doctors were now making too much money under it, and they would cite instances where Dr. So-and-So and Dr. So-and-So of my town or community charged $25 or $75 for little injuries, amounts that were excessive for the service rendered. A few cases of abuse in each community does an unending harm to the whole profession.

Throughout the session there was a struggle between the corporations and labor unions, and organized labor was defeated in every instance. Organized labor was in force during all the session; capital was more powerfully represented by railroad interests; Mr. Joseph R. Gundy, president of the Pennsylvania Manufacturers Association, and others, representing big interests, were in constant conference with legislators. Insurance companies notified employers that, if any legislation passed increasing the cost of compensation, the insurance rates would be increased that amount. According to computation made for us, our amendment would not have added over 5 per cent. to the cost of compensation. The objection was raised that the law had not been in effect long enough to fix a definite insurance rate, and so soon to disturb the experience gained would create more confusion. On the other hand, if no change were made at this time, in two years longer there would be established a good working basis on which to compute a just law to all parties concerned. This argument from employers had strong weight with the legislators.

Our interests were along the same lines as the labor demands involving the Compensation Law, and was subject to the same assaults and suffered in consequence. Certain influential individuals, who had promised their support to the medical profession, entirely repudiated their promise, and for unpublished reasons turned traitor to our cause. I doubt if political jugglery and trickery have ever been employed further than in the efforts to defeat amendments to the Compensation Law. At the dictate of high power, it was manipulated in committees and subcommittees, all in an effort to keep it off the calender until too late for fair consideration. Many legislators encouraged this action, fearing to go on record by their vote. This may be success of political shrewdness, but it should be resented by every medical man in the state. As good citizens, we can take defeat gracefully if the legislature has honestly so voted, but when we are tricked by a few individuals (and they are easily traced), we are not loyal to our manhood if our memories are short.

All politicians agree that the medical profession, if properly organized and united, could be the most powerful factor in the state for enforcing legislation. Why do we neglect our opportunity and allow ourselves to be the plaything of legislators? During this year we worked as a medical profession, the homeopathic and eclectic societies joining with us, but it was largely the work of the officers, as the great bulk of the profession did not respond to appeals made to them. Though we have failed in legislation we have gained in unity with our sister state societies. Our committee acknowledges the valuable cooperation and faithfulness of Dr. Krusen, president of the Homeopathic State Society, and members of his committee, and members of the State Eclectic Association. This should be the beginning of a working plan by which all our societies may unite for mutual protection and welfare along legislative and business interests.

As frequently advocated, my solution of the apathy and weakness of our profession is the employment of a full-time, amply paid, high-type medical man to organize the profession and represent us before the legislature. Every doctor in the state could well afford $1.00 or $2.00 annually for such a man. The larger our organization the greater his pay; this is therefore an incentive to organization. A man to put inspiring editorials into our medical journals, and to present the highest ideals of the medical profession before lay bodies on all occasions; the type of man to mingle among our legislators during legislative sessions and overcome the many unfair and unjust prejudices against our profession, prejudices fostered by those interests seeking an easy way to get into the profession; a man who can keep the profession in line, so that any individual or small group of individuals who have their own views on various matters pertaining to the profession will not independently have introduced into the legislature bills to the confusion and detriment of more important medical bills; and then, a man who, when he talks, the politicians know has the solid support of the twelve thousand physicians in the state and all the influence each one of them can exert. Such a man may be hard to find, but it is only a question of each one of us being willing to contribute our mite and our problems will be easy.

J. B. McAlister.

COMMITMENT OF THE INSANE

1. A commitment by physicians does not exist under Pennsylvania law. Physicians simply make an affidavit certifying to the need of care and treatment of a person who is insane.

2. No court and no constitutional law has ever delegated to physicians legal powers of restraint.

3. Institutional restraint is authorized by the State Committee of Lunacy under statutory enactments. But the certification by physicians is only one part of an authorized legal form for commitment. Not until the institutional head has given notice of the admission of a purported insane person and confirmed this opinion, is the form of restraint satisfied.

4. The certification by the examining physicians is only legalized in so far as the standing and repute of the signers and genuineness of the signatures is in question (Law of 1883). The law states that "any person falsely certifying as aforesaid should be guilty of a misdemeanor and also be liable civilly to the party aggrieved."

5. In persons with property or material interests, this form of certification is not considered satisfactory, but a formal court inquiry and further legal adjudication obtains.

6. It seems therefore that every commitment should be passed on by a judge of a common pleas court at the request of the parties interested or by the Committee on Lunacy itself. This would complete the commitment and protect the certifying physician.

7. To avoid suits for negligence in this matter, a physician should (*a*) insist on testifying in court instead of certifying, or (*b*) he should demand and attach a witnessed statement of the parties interested showing their reasons for asking for the certificate and in addition record fully his objective findings which indicate insanity. E. E. M.

PATRIOTIC MEETING AT PITTSBURGH

Arrangements are being made for a public patriotic meeting during the Pittsburgh Session. It may be in connection with the President's Reception on Wednesday evening, but the exact time and nature of this meeting will depend somewhat upon the convenience of the speakers of international reputation who have been asked to take part. It is desired that the patriotic ideals and efforts of scientific medicine shall find expression at this time and shall influence the patriotism of all our citizens.

THE OSTEOPATH IN MILITARY SERVICE

The osteopaths are making a plea to be accepted by the Government for medical service in the army and navy. As the law stands at present they cannot be accepted, for it specifically states that military and naval surgeons must be graduates in medicine from accredited schools. The osteopaths do not belong in this class and they are asking to have the law changed so that they will be eligible. They claim that they are now giving in their schools courses in the fundamental or basic sciences, and also courses in materia medica and surgery. Their leaders ask that they be examined the same as other applicants for the service and say that they are qualified to pass such examinations. This sounds very plausible and reasonable and some lay editors deem their cause a just one. But it must be borne in mind that the osteopath is a *sectarian wedded to one form of treatment.* If he has any knowledge of other forms of treatment he does not use them or at least there is no evidence that he does. Moreover, he advertises himself as an "osteopathic physician," applying to himself and accepting for himself a sectarian designation. He therefore puts himself in the same position as the mechanotherapeutist, the electrotherapeutist, the baunscheidtist, and others, and as the homeopath and eclectic formerly did.

A physician is one who uses any and all methods available in the treatment of disease. As for instance, in the treatment of a chronic arthritis he may use, in turn, cataplasms, blisters, electricity, osteopathy, the internal administration of drugs, and other methods. If he limits himself to one form of treatment he will limit his capability of producing a cure. It would not be right, therefore, to subject the soldier to treatment by a military surgeon who practices only one form of treatment. There is evidence every day that the surgeons-general are making every effort to provide the best medical attention that has ever been given any army or navy. The man in the ranks has no choice of medical advice; must take that which is offered him, and he must be supplied, therefore, with the best and broadest his country can find. The fighting man, who is offering all to his country, has the right to ask of it the best physicians that can be procured.

It is refreshing to learn that the present leaders of osteopathy have broader ideas than the founder of the sect and that they have increased the courses of instruction to include the fundamentals and essentials in medical practice. They have believed that theirs is a whole system of medicine, when in fact they have only a method of treatment, which is applicable to certain conditions. If it is true that they are enlarging their conception of the healing art, they are to be commended. But time only will tell how well qualified their present teachers are to conduct a well-balanced school of medicine.

Henry D. Jump.

MEDICAL MEN AND THE WAR

The necessity for stimulating the process of recruiting medical officers should be universally recognized and every effort on the part of organized medical bodies, more particularly state and county societies, should be made to fill the existing gaps in this branch of the government service. These medical organizations should extend their activities so as to include reputable physicians not members of county medical societies, among whom there are many desirable candidates, who should be properly approached.

Again, no better service could be rendered to the government by medical men beyond the age of enrollment, or over 55 years, than to encourage those who are eligible to join the Medical Officers Reserve Corps. The immediate situation demands concerted and heroic action in order that the required number of medical recruits shall be attained at the earliest possible moment.

To increase the number of available men as medical officers, the correction of remedial physical defects, such as hernia, flat foot, chronic appendicitis and the like, should be encouraged and advised through organized effort. This is an important field of work that could be properly assigned to the older men or those above the age of enlistment. An organization of leading, older specialists for this, among other objects, has recently been formed in Philadelphia under the name of Senior Military Medical Association. Similar labors in behalf of non-medical recruits might be undertaken by such special societies.

It has been currently stated and believed that the casualties among medical officers in the present struggle have been appallingly heavy, and this widespread impression has had its deterrent effect among medical men eligible for active service. Proof, however, has been forthcoming recently to show that the fatalities among the physicians in the French and British armies have been grossly exaggerated. While it is true that they are exposed to greater risks to life than in previous wars, owing to the fact that they are called on to render aid to the wounded nearer to the firing line (with a view to preventing infection of wounds) than formerly, and also on account of the character of missiles used in present-day warfare, nevertheless the crying need of more medical officers in the present international conflict should stimulate the medical profession of this country to an earnest endeavor to do its part in the successful conduct of the war. This is no time to hesitate or delay, particularly on the part of physicians who, to use the President's words, "are not engaged in pursuits vitally necessary to the prosecution of the war." J. M. A.

GOING TO PITTSBURGH BY AUTOMOBILE

On an advertising page will be found a map showing an outline of the main highways and roads leading to Pittsburgh. It is hoped that this may be of service to some who are thinking of attending the session of the state society at Pittsburgh next month. It will be taken for granted that members will be familiar with the best routes for the first fifty miles of the trip they would naturally take. It is requested that our members living along the roads indicated, or along roads that should be indicated but are not, will write The Journal, giving constructive criticism that will be helpful. Two kinds of suggestions are desirable: first, the pointing out of bad roads along the routes outlined, and bad detours that are likely to be in force during the last week of September; second, intimations as to any roads that may be better for parties crossing the whole or part of the state. Such suggestions to be of value must be made at once so that the same can be given in The Journal in September.

SEPTEMBER JOURNAL WILL GIVE ALL REPORTS

It is hoped that all reports of committees will be furnished in time for publication in the September issue of The Journal. This will enable members to consider the same before going to Pittsburgh, and will greatly facilitate the work of the House of Delegates. As the work of the various committees sometimes overlaps, it is important that all the reports be published at the same time. The reports of the secretary and treasurer will mention only items reaching their offices by August 31, and for this reason it is hoped that county secretaries will be prompt in reporting all new members received this month. Bills received by the secretary after August 25 will not be paid until after the Pittsburgh session. If members will at once send to The Journal copies of any resolutions they may wish to present to the House of Delegates, the publication of the same in the September issue will greatly facilitate prompt and efficient action by the House of Delegates.

HONOR ROLL FOR AUGUST

The following component county societies have forwarded the *per capita* assessment for more members than they paid for in 1916. The figures indicate the percentage of members paid for 1917 as compared with the number paid for 1916:

	Per Cent.
Schuylkill County	113
York County	113
Center County	111
Delaware County	110
Adams County	109
Bedford County	109
Crawford County	109
Huntingdon County	109
Lehigh County	109
Cumberland County	108
Dauphin County	106
Tioga County	106
Greene County	105
Luzerne County	105
Montgomery County	105
Montour County	105
Northumberland County	105
Potter County	105
Somerset County	105
Clinton County	104
Philadelphia County	104
Carbon County	103
Washington County	103
Allegheny County	102
Chester County	102
Columbia County	102

CHANGES IN MEMBERSHIP OF COUNTY SOCIETIES

The following changes have been reported up to July 18:

Adams County: *New Members.*—J. Hamilton Hildebrand, Biglerville; Horace W. Kohler, Littlestown.

Allegheny County: *New Members.*—Walter H. Caskey, Harry R. Goldstein, Pittsburgh; Charles A. Dillon, Butler (Butler County); Francis J. Madden, Duquesne; Richard E. Poole, Castle Shannon. *Deaths.*—James R. Freeland (Univ. of Pennsylvania, '04) in Pittsburgh, May 28, aged 33; James A. Miller (Univ. of Pittsburgh, '91) in Braddock, May 27, aged 46.

Center County: *New Member.*—John Sebring, Bellefonte. *Death.*—Robert G. H. Hayes (Jefferson Med. Coll., '84) in Bellefonte, June 20, from intestinal disease, aged 57.

Chester County: *New Members.*—A. Wayne Baugh, Paoli; Franklin C. Brush, Philadelphia; Charles J. Reimer, Phoenixville. *Removal.*—Jacob D. Leebron from Avondale to 5814 Chestnut Street, Philadelphia.

Clarion County: *Removal.*—Fred K. Booth from Fairmount City to 302 Corbet Street, Tarentum (Allegheny County).

Crawford County: *New Member.*—Carl M. Hazen, Titusville. *Transfer.*—Fred K. McCune to Erie County Society.

Cumberland County: *New Members.*—Edward S. Berry, Shippensburg; Edward S. Conlyn, Ambrose Peffer, Carlisle; Edgar C. Neely, Oliver P. Stoey, Newville; Milton R. Peters, Boiling Springs.

Erie County: *New Member.*—Fred K. McCune, Girard (by transfer from Crawford County Society). *Death.*—James H. Montgomery (Columbia Univ., Coll. of Phys. & Surg., New York, '84) of Erie, in Mercer, June 27, from heart disease, aged 58.

Fayette County: *Removal.*—Carlton H. Davidson from New Salem to Chattanooga, Tenn.

Jefferson County: *New Member.*—Harry A. Vosburg, Jr., Dubois (Clearfield County). *Death.*—James B. Haven (Univ. of Pittsburgh, '90) in Brookville June 28, from cardiac disease, aged 59.

Lancaster County: *New Members.*—Arthur J. Thome, Mount Joy, R. D. 3; William B. Thome, Elizabethtown.

Lawrence County: *New Member.*—Katherine M. Cook, New Wilmington.

Lehigh County: *New Member.*—Elmer C. Bruch, Bethlehem (Northampton County).

Luzerne County: *New Member.*—Samuel A. Ruffner, Kingston. *Death.*—Evan Williams (Jefferson Med. Coll., '85) in Sugar Notch recently, aged 61.

Lycoming County: *New Member.*—Waldo W. Hull, Williamsport.

Mercer County: *New Members.*—Frederick W. Knippel, Mercer, J. F. Lafferty, Sandy Lake.

Montgomery County: *Removal.*—S. Nelson Wiley from McKeesport (Allegheny County) to 612 North Fifty-Fifth Street, Philadelphia.

Northampton County: *New Members.*—Thomas Wesley Schwab, Bath; E. L. Smock, Bath, R. D. 2.

Philadelphia County: *New Members.*—Alfred E. Allman, Israel Binder, Samuel C. Boston, Samuel Bruck, Michael A. Burns, John P. Chapman, Jacob M. Cunningham, Leon Felderman, John M. Laferty, J. Walter Levering, Joseph M. Malatesta, Benjamin O. Oliver, William Pepper, Eli H. Porch, J. Neely Rhoads, George P. Rishel, Samuel Rubin, James B. Rucker, George L. Stephan, James W. Walk, Philadelphia; Nathaniel Gildersleve, Lansdowne (Delaware County). *Death.*—Charles W. Houghton (Pennsylvania Medical College, Philadelphia, '59) in Philadelphia June 5, aged 80. *Removal.*—Harry S. Buckingham from Philadelphia to Berwick (Columbia County).

Tioga County: *Removal.*—Harry O. Kingsley from Mansfield to Gillett (Bradford County).

Westmoreland County: *New Members.*—David A. Rupert, Webster; William H. Taylor, Irwin. *Removal.*—Joseph M. Reed from Derry to 308 Diamond Bank Bldg., Pittsburgh.

PAYMENT OF PER CAPITA ASSESSMENT

The *per capita* assessment for the year 1917 has been received from component county societies since July 7, as acknowledged on page 735 of the July Journal, as follows:

July 13,	Crawford	51	6788	$ 2.75
July 14,	Mercer	69–70	6789–6790	5.50
July 16,	Cumberland	36–41	6791–6796	16.50
	Lawrence	55	6797	2.75
	Jefferson	59	6798	2.75
July 17,	Adams	24–25	6799–6800	5.50
	Philadelphia	1816	6801	2.75
July 18,	Lancaster	134–135	6802–6803	5.50
July 21,	Tioga	37	6804	2.75
	Lehigh	99–100	6805–6806	5.50
July 23,	Somerset	42	6807	2.75
	Lackawanna	185–188	6808–6811	11.00
July 26,	Washington	116	6812	2.75
	Fayette	117–118	6813–6814	5.50

STATE NEWS ITEMS

MARRIED

Dr. Charles William Vates, Mount Oliver, and Miss Rose Elizabeth Stanley, Oil City, June 9.

Dr. Theodore Peters, Chambersburg, and Miss Gertrude Miriam Lenhardt, Norristown, June 26.

Dr. Edmund Roger Samuel, Mount Carmel, and Miss Emily Gemellia Snyder, Strasburg, June 30.

Dr. Olin G. A. Barker, Johnstown, and Miss Sara Hoffa Lowry, Watsontown, June 26.

DIED

Dr. William Fink Marks (Hahnemann Medical College, Philadelphia, '69) in Reading June 4, from cardiac asthma, aged 71.

Dr. Wilbur L. Hutchison (Jefferson Medical College, '91) in Hazleton, June 11, aged 51.

Dr. Nelson M. Smith (Univ. of Pennsylvania, '82) in Riverside, June 19, from paralysis, aged 60.

Dr. Felix H. Pipes (Wooster, Ohio, Med. Coll., '79) in Waynesburg, June 6, after a surgical operation.

Dr. Esther Lydia Wilhelmina Wright Nippes Marbourg (Woman's Med. Coll. of Pennsylvania, '82) in Johnstown, May 29, from bronchitis, aged 86.

ITEMS

The Antinarcotic Bill was approved by Governor Brumbaugh on July 10.

Dr. Robert Goodman has been made assistant medical instructor of the Philadelphia Bureau of Health.

Dr. Edward E. Montgomery has been elected president of the Philadelphia Branch of the National Wartime Prohibition Committee.

Capt. Clarence P. Franklin, assistant secretary of the state society, is the Adjutant of the U. S. A. Ambulance Corps in camp at Allentown.

Weir Mitchell Tablet Unveiled.—A bronze tablet in memory of Dr. S. Weir Mitchell was unveiled at the class-day exercises of the University of Pennsylvania, June 19.

Dr. Frank C. Abbott who has been in France since the beginning of the war was specially mentioned for service on the occasion of the distribution of medals at Vendome.

Mrs. J. William White, widow of the late distinguished surgeon, has presented to the University Museum all the archeological and ethnological collections of her late husband.

Dr. William H. Morrison, Philadelphia, was elected president of the Baltimore and Ohio Association of Railway Surgeons, at its meeting in Cleveland, June 22.

Dr. J. T. Rothrock, West Chester, formerly commissioner of forestry, has been appointed by Governor Brumbaugh a member of the State Forestry Reservation Board, succeeding the late S. B. Elliott.

The State Dental Board announced on July 11 that 250 of the applicants who took the examinations in June had passed. The next examinations will be held in Philadelphia and Pittsburgh, December 5, 6 and 7.

The Woman's Medical College of Pennsylvania has received $10,000 by the will of the late Dr. Anna Lukens of New York. Dr. Lukens was the first woman to gain admittance to the Philadelphia County Medical Society.

The New William H. Singer Memorial Laboratory, Pittsburgh, which cost $250,000, and is the gift of Mrs. Singer, her son and two daughters, was formally opened and presented to the Allegheny General Hospital, May 23, by G. Harton Singer.

Dr. William M. Lynch, Clarks Summit, has been appointed superintendent of the State Hospital for Criminal Insane at Farview, Wayne County, has resigned as senator from Lackawanna County and has entered on the duties of his new position.

Dr. C. R. McKinniss, Bridgeville, addressed the members of the Mercer County Medical Society at their meeting at the Richardson Sanitarium, his subject being syphilis. Among those present at the meeting was Dr. I. J. Moyer, Pittsburgh, Councilor for the district.

Poliomyelitis.—On August 1, 21 cases of poliomyelitis had been reported in the eastern end of Lancaster County, with seven deaths. Most of the cases were from Amish families and five were considered as having the same source of infection. In one family two cases, twins, were found.

Dr. J. M. McKibbin, Buck Valley, Fulton County, a member of the Bedford County Medical Society, writes that he has been called to Fort Benjamin Harrison, Indiana, M. O. T. Camp, and that Dr. H. E. Tabler, Hancock, Md., has kindly consented to take on himself the burden of helping all he can in Dr. McKibbin's field of practice.

Sellersville Hospital.—In December, 1913, there was dedicated the Grand View Hospital at Sellersville, Bucks County, the cost being about $10,000. Recently B. Frank and Allen R. Crossman, Philadelphia, gave $12,000 toward a new building which was dedicated July 15, 1917. The new institution representing an expenditure of about $35,000, is modern in equipment throughout. Dr. William J. Wilkinson is surgeon-in-chief and Mrs. Wilkinson has charge of the nurses.

The State Pharmaceutical Examining Board announced on July 9 that 229 of the 271 applicants who took the examinations in June passed. For assistant pharmacist 175 candidates were examined and 105 passed. The next examinations will be held in Williamsport, September 1. The board has advanced the entrance requirements for admission to the graduate course in a college of pharmacy from one to two years' completed high school course, effective for a pharmacy course beginning in 1918. Prospective pharmacy students should notice that the course beginning in the fall of this year is the last one under which they may enter on one year's high school education.

"Christian Mystics."—The following is clipped from the Philadelphia *Ledger* of July 2. The American Medical Directory gives a F. Homer Curtiss at Berkeley, Calif., as a graduate of University of Pennsylvania, 1909. "A service for the healing of spiritual suffering by silent meditation was conducted by Dr. F. Homer Curtiss, yesterday, at the convention of the Order of Christian Mystics. Dr. Curtiss is the founder of the order, which claims to have converts throughout the world. Great stress is laid on meditation by Dr. Curtiss, who announced that the headquarters at 1731 Chestnut Street, will be opened as a haven for meditation by tired business men and shoppers. Engravings and prints calculated to rest and bring solace to the mind adorn the walls of the room. The delegates will have an outing at Valley Forge today, which will bring their convention to an end."

Hospital Appropriations. — Governor Brumbaugh finished his work on 450 appropriation bills, July 27. The amount allowed for the two years, 1917-1918, to the following institutions, will be of interest:

Homeopathic State Hospital for the Insane, Allentown	$ 113,000
State Hospital for Insane, Danville	64,400
State Hospital for the Criminal Insane, Farview	206,500
State Lunatic Hospital, Harrisburg	51,000
State Hospital for Insane, Norristown	174,479
State Hospital for the Insane, Warren	217,000
State Asylum for the Chronic Insane, Wernersville	154,500
Eastern Pa. State Inst. for Feebleminded and Epileptics, Spring City	759,125
State Inst. for Feebleminded of Western Pa., Polk	1,111,500
Home for Training in Speech of Deaf Children, Philadelphia	54,859
Pa. Oral School for the Deaf, Scranton	76,200
Pa. Village for Feebleminded Women, Laurelton	100,000
State Institution for Inebriates, selection of site, etc.	200,000
State Industrial Home for Women, Muncy.	130,000
Dixmont Hospital for the Insane, Dixmont.	126,827
Glen Mills Schools in the Eastern District	348,331
Pa. Institute for Deaf and Dumb, Philadelphia	335,500
Pa. Institute for Instruction of the Blind, Overbrook	117,250
Pa. Training School for Feebleminded Children, Elwyn	350,000
Western Pa. Institution for the Blind, Pittsburgh	142,600
Western Pa. Institution for the Deaf and Dumb, Edgewood Park	175,000

Dr. William Duffield Robinson, 2012 Mt. Vernon Street, Philadelphia, is chairman of the Special Medical Reserve of men over 55 years. At the meeting June 10, in the endeavor to come to some understanding as to what might seem to be the line of usefulness or duties for this special Medical Reserve Corps the following points were outlined to serve as a basis for discussion: (1) To assist in the examination of recruits. (2) To assist in the repair of rejected men and make them fit for acceptance. (3) To assist in the care of the injured, sick, disabled or convalescent men. (4) To assist in the correction of defects in sense organs. (5) To assist in sanitation, hygiene and medical care of camps. (6) To assist as special experts within their training, experience and facilities, and in laboratory examinations, etc. (7) To supplement the work of the regular medical officers in any manner within their power, by means of personal or hospital facilities. (8) To give lectures, special demonstrations, teaching, etc. (9) And in particular to endeavor to impress on the mayor the urgency of taking action in the matter of social evil.

GENERAL NEWS ITEMS

The Annals of Medical History is a new quarterly published by Paul B. Hoeber, New York, and edited by Dr. Francis R. Packard, Philadelphia, assisted by a staff of prominent associate editors.

Commissions in the Reserve Corps.—During the week ending June 23, 1917, seventeen majors, 105 captains and 1,030 lieutenants were recommended to the adjutant-general of the army for commission in the Medical Reserve Corps.

North West Medicine for July says that "it is stated at the office of Washington Board of Control that the number of inmates of the state penitentiary and the reformatory at Monroe has decreased by 400 since the dry law went into effect."

Offer of Radium to Military Forces.—Dr. William H. Cameron, Pittsburgh, at the annual dinner of the American Radium Society held at Hotel Vanderbilt, New York, June 4, announced that the organization was ready to turn over to the government radium worth $50,000, for use in military service.

Rockefeller Foundation Builds Hospitals in China.—The Rockefeller Foundation has awarded contracts for the building of two hospitals to cost $3,000,000. One of these will be located in Pekin and the other in Shanghai, and both will be for the work of the China Medical Board.

Seek Medical Cooperation. — Surgeon General Gorgas of the army; Surgeon General Braisted of the navy, and prominent medical men headed by Dr. William Mayo of Rochester, Minn., conferred with Secretary Baker at the War Department July 17. The purpose of the conference was to secure cooperation of the military medical divisions with the profession throughout the country.

Women Give Hospital Unit.—The New York Infirmary for Women and Children, backed by the National American Woman Suffrage Association, has offered a mobile hospital unit to the government. Dr. Caroline S. Finley is director of this unit. The organization committee has among its members Dr. I. von Sholly, Dr. Mary Lee Edward and Dr. Alice Gregory. The unit starts with a nucleus of twelve doctors, twenty-one nurses, and three orderlies.

Dr. Frank Billings, Chicago, heads a Red Cross Commission to Russia, which sailed from a Pacific port early in July. The object of the commission is "to make a general survey of the needs of Russia, military and civil; what the conditions are as regards physicians, nurses, medical and surgical supplies, ambulances, motor trucks, etc.; and to investigate sanitary conditions in all their phases, as well as business and social conditions in their broadest aspects." Dr. William S. Thayer, Baltimore, Wilber E. Post, Chicago, D. J. McCarthy, Philadelphia, and some twenty other physicians, experts and stenographers, will assist Dr. Billings.

Council on Pharmacy and Chemistry.—Since the last report the following articles have been accepted for inclusion with New and Nonofficial Remedies: Borcherdt's malt olive, Borcherdt Malt Extract Co.; lipoiodine "Ciba," A. Klipstein and Co.; Pasteur antirabic preventive treatment (Harris modification), Eli Lilly and Co.; citresia, Horace North; hay fever pollenin fall-Mulford, hay fever pollenin spring-Mulford, H. K. Mulford Co.

The Mental Hygiene War Work Committee of the National Committee for Mental Hygiene is anxious to obtain names of psychiatrists and neurologists for examination of National Guard troops in their armories before sending them to camp; the surgeon general of the army has arranged to accept for this work qualified physicians who may contract for specified duty, at a specified place, for a specified time, or for part time. Further information can be received from Dr. Frankwood E. Williams, Vice Chairman of the Committee, 50 Union Square, New York City.

Annual Meeting Canadian Medical Association.—In his presidential address before the Canadian Medical Association, Dr. Alexander D. Blackader, Montreal, said that so many of the members were overseas that the annual meeting had not been held for three years, and this one was held as it marked the fiftieth anniversary of the founding of the association. The Canadian Medical Association, in that time, had taken a pronounced part in raising a high standard of medical education in Canada, and now it was intended to raise the standard still higher and extend the medical course.

BULLETIN EXCERPTS

BULLETIN, LANCASTER

Book Agents.—We have no quarrel whatsoever with book agents. They are, we suppose, the only direct medium between the publishers and the physicians and they will doubtlessly be with us as long as men continue to write and others to read books. . . . Physicians are not immune to flattery. Goodness no. We are just as human as any other class, and it is pleasing to hear nice things said of us. We are perfectly willing to admit that, but please remember this, flattery and a first edition are just as compatible as zinc and sulphuric acid and the reaction is represented by the "Please remit" from the publishers. If you don't care how you spend your money, buy everything you wish; but if you do care how you spend it, don't buy because an agent informs you that he "understands you are a leader in the community, etc." He is paid and paid liberally to understand just such facts. Purchase what you need and what you want, but if you don't need, don't want and can't afford, don't buy because the agent is a polished and by far more expert salesman than yourself.

BUREAU OF MEDICAL EDUCATION AND LICENSURE

MEMBERS BY APPOINTMENT

John M. Baldy, Pres., 2219 DeLancey St., Philadelphia.
Daniel P. Maddux, Chester.
Irvin D. Metzger, Pittsburgh.
Calvin L. Johnstonbaugh, Bethlehem.
Adolph Koenig, Pittsburgh.

Members Ex-Officio.

Nathan C. Schaeffer, Sec., Dept. of Pub. Inst., Harrisburg.
Samuel G. Dixon, Harrisburg.

LIST OF QUESTIONS SUBMITTED BY THE BUREAU OF MEDICAL EDUCATION AND LICENSURE AT THE JULY, 1917, EXAMINATIONS

MEDICAL AND SURGICAL

PHYSIOLOGY, PATHOLOGY AND BACTERIOLGY

1. Name ten ailments for the diagnosis of which laboratory aid is indispensable. Name the test you would make in each. (No technic.)
2. Describe briefly the types of kidney lesions which seriously affect its functional capacity, stating the feature in the urinalysis indicating each type.
3. Tuberculosis: describe a typical lesion; outline the technical aids to its diagnosis; give the technic for the identification of the bacillus.
4. Name each lesion in the three stages of syphilis. In the tertiary stage how do you account for a possible blindness, deafness, locomotor ataxia, presenile apoplexy?
5. Give the (a) alteration in function; (b) the pathologic status; (c) the etiology, and (d) the possible sequellae indicated by a presystolic cardiac murmur.
6. On what characteristic feature would you base the recognition of (a) the typhoid bacillus; (b) the spirochete of syphilis; (c) the plasmodium of malaria; (d) the gonococcus; (e) the Klebs-Loeffler bacillus?
7. State briefly the function of the (a) semicircular canals; (b) the liver; (c) the vagus nerve; (d) the recurrent laryngeal nerve.
8. Name the glands of internal secretion, stating in a sentence or two what systemic effect any alteration in each produces.
9. Describe the mechanism of the following reflexes: (a) pupillary; (b) knee jerk; (c) "blushing."
10. Against what diseases may artificial immunization be established? Outline the technic followed in securing this in several of these cases.

DIAGNOSIS, SYMPTOMATOLOGY, TOXICOLOGY, MEDICAL JURISPRUDENCE

1. Enumerate the symptoms, give the etiology and the general appearance of the throat in tonsillitis.
2. Enumerate the early characteristic symptoms of (a) pulmonary; (b) acute miliary; (c) acute pneumonic; (d) chronic ulcerative tuberculosis.
3. Enumerate the symptoms characteristic of scarlatina simplex, scarlatina anginosa and scarlatina maligna. Differentiate it from measles and roseola.
4. Give the etiology and enumerate the symptoms of duodenocholangitis and name three diseases which may simulate it. Differentiate them.
5. Differentiate hysteria, epilepsy and apoplexy.
6. Describe in detail what constitutes cardiac insufficiency. Mention the distinguishing symptoms of same.
7. In a child of 4 to 6 years of age, enumerate the symptoms of enterocolitis. Differentiate it from two other conditions which may simulate it.
8. Outline the symptoms of stomatitis, stating the forms which it may assume.

9. Mention the characteristic poisonous symptoms of (a) the coal tar products; (b) digitalis; (c) aconite; (d) belladonna.

10. A dead body having been found in some remote place, state in detail how you would determine the cause of death; whether due to (a) lightning; (b) suicide; (c) murder; (d) or apoplexy.

OBSTETRICS AND GYNECOLOGY, PHYSIOLOGIC CHEMISTRY

1. Discuss the general care of a woman for the first week after delivery.

2. Discuss the care of the baby born at term for the first week of its life.

3. Discuss the care of the birth canal of a woman after delivery, taking into consideration all possible injuries.

4. Discuss the possible causes of mechanical obstruction to labor and the methods of overcoming each.

5. What abdominal conditions may be mistaken for pregnancy at term and what are the essential points of difference?

6. Discuss the symptoms of the menopause and indicate the various conditions for which it may be mistaken.

7. Give in detail the parts which may be affected by gonorrheal infection of the female genital tract and the resulting lesions.

8. Discuss the early diagnosis of cancer of the (a) cervix uteri; (b) fundus uteri. (No credit will be given for any of the advanced symptoms.)

9. Discuss the chemistry of respiration.

10. Outline the most important differences between human milk and cow's milk.

ANATOMY, SURGERY

1. In an infection of the extremity following a severe injury, detail a method of treatment.

2. Mention the various forms of inguinal herniae from (a) point of exit; (b) contents; (c) extent of descent; (d) congenital defects; (e) accidents or conditions of contents.

3. Give the relationship of the rectum to the surrounding structures in each sex. Detail the surgical treatment of hemorrhoids.

4. What veins comprise the portal system? This system begins and ends where? From what viscera does it collect blood?

5. In the operative treatment of varicose veins of the leg, state the anatomic points considered both as to etiology and operation.

6. State the varieties of dislocation at the shoulder joint. Describe in detail a method of reduction of any form selected, stating the anatomic points considered in the reduction.

7. In a fracture of the skull involving the middle meningeal artery, what symptoms would probably be present? By what external landmarks would you locate the point of intracranial hemorrhage?

8. What are the elements of danger in a severe burn? How should they be met and prevented?

9. How would you determine (a) carbuncle; (b) abscess; (c) boils? Outline the surgical treatment of each.

10. Outline the etiology, methods of diagnosis and the treatment of surgical kidney.

PRACTICE, MATERIA MEDICA, THERAPEUTICS, HYGIENE

1. Name three drugs of animal origin. In what conditions may they be administered and what is the rationale of their employment?

2. Under what special morbid conditions would you use the following drugs: (a) strychnin sulphate; (b) codein sulphate; (c) atropin sulphate; (d) veratrum viride; (e) creosotum? Give dose of each.

3. Describe the treatment of tapeworm, of trichinosis and of hookworm.

4. Give the main therapeutic uses of potassium bromid; of mild mercurous chlorid and of aconite.

5. What medicinal treatment would you advise in dysmenorrhea, in menorrhagia, in amenorrhea?

6. Describe the general principles that should govern the establishment and medicinal management of a military camp.

7. Outline the treatment of heat stroke proper and of heat exhaustion.

8. Describe the treatment of rheumatic gout. What dietetic regulations would you advise?

9. Outline the treatment of herpes zoster, of urticaria and of erysipelas.

10. Describe the treatment of gonorrhea in the male and in the female. What measures would you employ in the prevention of ophthalmia neonatorum, and how would you treat a case?

MASSAGE AND ALLIED BRANCHES

ANATOMY, PHYSIOLOGY

1. Describe the structure of the skin.

2. Describe the functions of the skin.

3. Describe the digestion of carbohydrates and proteins in the intestinal tract.

4. Name the chief enzymes of the gastric and pancreatic juices.

5. What is (a) lymph; (b) chyle?

6. What muscles of the arm would be affected in musculospiral palsy?

7. What is understood by the epiphysis?

8. Which muscles attached to the scapula would require special attention by massage in an ankylosed shoulder joint, the patient being unable to abduct the arm?

9. How many carpal bones are in the wrist? With which forearm bone do the carpal bones directly articulate?

10. Name the muscles of the leg, between the knee and ankle.

PRACTICE, HYGIENE, PATHOLOGY

1. What methods would you employ in the late treatment of an injured joint?

2. What conditions in a joint would contra-indicate your method of treatment?

3. State what you understand by the following terms: cathode, anode, high frequency, galvanic, faradic.

4. What treatment would you apply in a case of chronic constipation which is not due to any organic disease?

5. In a case of edema of the legs, due to impaired circulation, what would be your method of manipulation and treatment?

6. In a tardy restoration of complete function following a fracture of one of the long bones, what treatment would you employ?

7. What treatment would you employ for insomnia?

8. If a case of sciatica was referred to you, how would you treat it?

9. If a case of neurasthenia was referred to you, how would you treat it?

10. Name the various forms of baths employed in hydrotherapy. Give a general outline of the conditions that would guide you in the employment of each.

CHIROPODY

PHYSIOLOGY, ANATOMY

1. Describe the skin. State what conditions tend to greater activity of skin function.

2. What anatomic structures may be involved in clubfoot?

3. What discomforts or anatomic deformities may result from an improperly fitting shoe?

4. What do you understand by metabolism?

5. Describe in detail the joint where bunion most usually occurs.

6. Describe the formation, structure and nourishment of the toenail.
7. What anatomic changes occur in fallen arch?
8. What do you understand by epithelial cells? Cite examples of same.
9. Name three glands of the body and the more important function of each.
10. State the general divisions of the nervous system.

PRACTICE, HYGIENE, PATHOLOGY

1. Give briefly the routine instruction you would give a patient in the ordinary care of his or her feet.
2. Outline the office equipment that is essential to the proper performance of your work.
3. Explain the terms aseptic, antiseptic, sterile. Give three antiseptic solutions, giving the strength for use of each.
4. Give briefly your treatment of a heloma.
5. Describe in words or by a drawing the structure of a bunion (the pathologic condition).
6. How would you recognize and care for a fallen arch?
7. Explain the pathologic process through which a rubbing shoe may be the cause of death.
8. Define suppuration, abscess, toxins, antitoxins, septicemia.
9. Describe the etiology and the pathology of ingrowing toenail. Give the treatment for the same.
10. Name five deformities which may be found in the foot and give their predisposing causes.

DRUGLESS THERAPY

PHYSIOLOGY, ANATOMY

1. State the elements that enter into the composition of the normal human blood.
2. What do you understand by metabolism?
3. Name the nine parts into which the abdomen is divided. Name a structure or organ contained in each.
4. Name the nerve through which sensations of gastric pain would be transmitted to the brain.
5. What changes occur in the body following excessive and protracted muscular exercise?
6. Describe the gross anatomy of the spinal cord.
7. State the special functions of (a) the cerebral, (b) the spinal, (c) the sympathetic nervous system.
8. Select any one of the larger joints of the body and describe in detail its anatomy.
9. What do you understand by epithelium? What do you understand by endothelium? Cite two examples of each.
10. State the vascular and nervous supply to the kidneys.

SYMPTOMATOLOGY, DIAGNOSIS, HYGIENE, PRACTICE

1. Differentiate malignant and benign tumors.
2. Enumerate the early symptoms of malignancy of the breast and uterus. (Late symptoms will not be accepted.)
3. State the significance of (a) blood in the urine; (b) blood in the stools.
4. How does the manipulation of the skin affect the circulation?
5. What are the effects of heat and cold on the circulation?
6. Enumerate the differentiating symptoms of anterior poliomyelitis from other diseases affecting the nervous system?
7. Differentiate chronic constipation from bowel obstruction.
8. Differentiate acute rheumatism of the ankle from a sprain.
9. Discuss the diagnostic symptoms of tubercular disease of the hip joint.
10. State the significance of the various bleedings coming through the mouth. Differentiate three varieties.

PATHOLOGY

1. What systematic study of pathology have you made? What laboratory work have you learned to perform?
2. Give the pathologic condition in the various stages of pneumonia.
3. Diagnose by urinalysis (a) acute nephritis; (b) chronic interstitial nephritis, and (c) diabetes mellitus.
4. What is the significance of (a) general glandular enlargement in the body; (b) of some selected local enlargements?
5. Describe the lesions which may cause vomiting of blood.
6. Given a case of suffering from a persistent headache, what underlying conditions would you suspect?
7. Describe the process characteristic of tuberculosis of the spine.
8. Name five bacteria which produce diseases, and tell what part of the body each is apt to affect.
9. Describe the spinal lesion in (a) infantile paralysis; in (b) locomotor ataxia.
10. Explain each of the following terms: (a) aneurysm; (b) glaucoma; (c) paraplegia; (d) ankylosis.

BOOKS RECEIVED

Books received are acknowledged in this column, and such acknowledgement must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

The Mastery of Nervousness. Based on Self Reeducation. By Robert S. Carroll, M.D., Medical Director Highland Hospital, Asheville, N. C. New York: The Macmillan Company, 1917.

Transactions of the American Hospital Association, Eighteenth Annual Conference. Held at Philadelphia, Pa.; September 26 to 30 inclusive. Volume XVIII. Published by the Association, Office of Secretary, Philadelphia, 1916.

Medical and Surgical Reports of the Episcopal Hospital. Volume IV. Contains a report of the Chief Resident Physicians; a sketch of the History of the Episcopal Hospital, and Papers Based on the Work done in the Hospital in 1915 and 1916. Philadelphia: Press of Wm. J. Dornan, 1916.

The Milk Problem. In Sanitation, Economics and Agriculture. By J. Scott MacNutt, Lecturer on Public Health Service in the Massachusetts Institute of Technology; Author of A Manual for Health Officers. New York: The Macmillan Company, 1917. Price, $2.00.

Physical Exercises for Invalids and Convalescents. By Edward H. Ochsner, B.S., M.D., F.A.C.S., President, Illinois State Charities Commission; Attending Surgeon, Augustana Hospital, Chicago. Illustrated. St. Louis: C. V. Mosby Company, 1917. Price 75 cents.

Roentgen Technic (Diagnostic). By Norman C. Prince, M.D., Attending Roentgenologist to the Omaha Free Dental Dispensary for Children; Associate Roentgenologist to the Douglas County Hospital, Bishop Clarkson Memorial Hospital, Swedish Immanuel Hospital, St. Joseph's Hospital, and Ford Hospital, Omaha, Neb. With 71 Original Illustrations. St. Louis: C. V. Mosby Company. 1917. Price $2.00.

The Practical Medicine Series. Comprising ten volumes of the year's Progress in Medicine and Surgery. Under the General Editorial Charge of Charles L. Mix, A.M., M.D., Professor of Physical Diagnosis in the Northwestern University Medical School. Series, 1917. Volume III, The Eye, Ear, Nose and

Throat, Edited by Casey A. Wood, C.M., M.D., D.L.C.; Albert H. Andrews, M.D., and George E. Shambaugh, M.D. Price, $1.50. Chicago: The Year Book Publishers. Price of series of ten volumes, $10.00.

Manual of the Diseases of the Eye. For Students and General Practitioners. By Charles H. May, M.D., Director and Visiting Surgeon, Eye Service, Bellevue Hospital, New York; Attending Ophthalmic Surgeon to Mt. Sinai Hospital, New York; Consulting Ophthalmologist to the French Hospital, to the Italian Hospital, New York, and to the Monmouth Memorial Hospital; Formerly Chief of Clinic and Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department, Columbia University, New York. Ninth Edition, Revised. With 377 original illustrations including 22 plates, with 71 colored figures. New York: William Wood and Company, 1917. Price, $2.50 net.

BOOK REVIEWS

THE TREATMENT OF EMERGENCIES. By Hubley R. Owen, M.D., Surgeon to the Philadelphia General Hospital; Assistant Surgeon to the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases; Chief Surgeon to the Philadelphia Police and Fire Bureaus; Assistant Surgeon, Medical Reserve Corps, U. S. Navy. 12mo volume of 350 pages with 249 illustrations. Philadelphia and London: W. B. Saunders Company, 1917. Cloth $2.00 net.

This book contains the amount of medicine and surgery that a policeman, a fireman or a nurse should know. Any layman that wishes to become proficient in first-aid work will find it most valuable. Likewise, any physician who gives such instruction to nurses or others will here find available some excellent material. If we were to indulge in a little proofreading we would suggest aromatic spirit instead of the constantly recurring aromatic spirits of ammonia and a few other similar changes. A book, however, that presents so little for adverse comment is rare.

G. H. B. T.

HOW TO LIVE. Rules for Healthful Living Based on Modern Science. Authorized by and prepared in collaboration with the Hygiene Reference Board of the Life Extension Institute, Inc. By Irving Fisher, Chairman, Professor of Political Economy, Yale University, and Eugene Lyman Fisk, M.D., Medical Director of the Institute. Tenth Edition Revised. New York: Funk and Wagnalls Company, 1917.

This practical book was first printed in October, 1915, its popularity calling for one edition after another so that in February of this year the tenth and revised edition was printed. The purpose of the book "is to spread knowledge of Individual Hygiene" or "(1) to provide the individual and the physician with the latest and best conclusions on individual hygiene; (2) to ascertain the exact and special needs of the individual through periodic health examinations; (3) to induce all persons who are found to be in need of medical attention to visit their physicians."

No subject is more important to the American people than personal hygiene and the reviewer knows of no book on this subject better adapted for personal reading and study. The nine pages devoted to "avoiding colds" are worthy the study of every one, physicians included, and this section alone will be worth more to the average person of any class or calling than the price of the book. The "Notes on Food" are especially helpful in this time of high cost of living. As Dr. Samuel G. Dixon says of the book, "Every one should study it and then resolve to put into everyday practice its sane teachings."

1916 COLLECTED PAPERS OF THE MAYO CLINIC, Rochester, Minn. Octavo of 1014 pages, 411 illustrations. Philadelphia and London: W. B. Saunders Company, 1917. Cloth $6.50 net; Half Morocco, $8.50 net.

This volume is a perfect encyclopedia of knowledge concerning the subjects under consideration in the various papers presented. The best advertisement for the book is its title. It is worthy of the name it bears. Among the subjects treated are gallbladder disease, goiter, gastric and duodenal ulcer, cancer, etc. These are discussed in the light of the large amount of original work done in the Mayo Clinic and are most illuminating. One of the best is an exhaustive article on the "Causation of Gastric and Duodenal Ulcer" by Edward C. Rosenow. For the surgeon who wishes to be right up to the minute in his work this volume is a necessity. G. H. B. T.

A HANDBOOK ON PRACTICAL TREATMENT. By many writers. Edited by John H. Musser, Jr., M.D., Associate in Medicine, University of Pennsylvania, and Thomas C. Kelly, M.D., Instructor in University of Pennsylvania. Volume IV, with complete index to volumes I, II, III and IV. Octavo of 1,000 pages. Philadelphia and London: W. B. Saunders Company, 1917. Cloth, $7.00 net; Half Morocco, $8.50 net.

This volume is supplementary to its predecessors. In it the contributors to the preceding volumes have so far as possible made additions to their original articles, together with such modifications as have become necessary by the advances in therapeutic procedure that have taken place in the interim. Some articles have, for one reason or another, been written anew and there have besides been included a number of subjects not discussed at all in previous volumes. The work has been exceedingly well done and reflects credit on authors and editors alike. The volume completes a series that forms a full and comprehensive presentation of the treatment of diseases from all angles, and that maintains the high standard of excellence established by the original editors, the late Dr. John H. Musser and the late Dr. Aloysius O. J. Kelly, both of whom were lost too early to a profession they helped adorn. E.

SOCIETIES

SECTION ON GENERAL MEDICINE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA

Meeting of April 23, 1917, at 8: 15 p. m.

Dr. Clifford B. Farr, Chairman of Section, presiding

Palpitation of the Heart. Dr. Harlow Brooks, New York City: Even among our numerous loosely applied terms descriptive of heart lesions I doubt if there be a single one which conveys so entirely different a picture to more persons than does palpitation of the heart. Mackenzie apparently considers as the most essential phase of the condition a patient's consciousness of his heart action and particularly so when extrasystoles are present. I would give as the most elementally necessary characteristic of the complex a rapid and tumultuous action of the heart, usually distressingly apparent to the patient. No one feature of the disease is more variable than that of the rhythm. I am strongly of the opinion that most if not all cases of paroxysmal tachycardia are examples of palpitation. A textbook differentiation has been given on the assumption that palpitation commonly develops slowly and paroxysmal tachycardia spontaneously. On this very point, however, great variation occurs in the same patient. The differentiation based on the manner of cessation of an attack is also not valid because of variation in different patients. The types of persons in which these various conditions appear present one of the most important clinical features; the patients affected being almost exclusively of the neurotic type. The manner of original onset in palpitation of the heart is most suggestive of its elemental nature. Once an attack has been excited by a certain type of irritation such stimulation is likely to be followed subsequently by the same experience. Attacks may also arise from stimuli within the abdominal cavity. Dilatation of the stomach is also frequently a cause. Certain cases are excited by such specific articles of diet as certain shell fish, proteids or vegetables; red pepper may be a primary or secondary excitant. Overthyroid secretion favors the onset of attacks and prolongs their duration. Perhaps the most grave possibilities of palpitation of the heart lie in its possible confusion with other circulatory disturbances. The irritable heart described by the elder Tyson as occurring especially in young soldiers during the Civil War, is, in my opinion, a condition very closely allied to my conception of palpitation of the heart.

The treatment resolves itself into those measures designated to lessen or remove the basic characteristics or excitors of the disease and such factors as are believed to influence the symptom itself. In my experience physical stress rarely is an inducing cause unless associated with mental or psychic elements; unusual physical experiences are on the other hand likely to abort or prevent an attack. Briefly, I believe palpitation of the heart to be identical with paroxysmal tachycardia. It is excited by extracardiac stimuli in most if not all instances and is closely associated with disturbances of the endocrine system and either associated with this or independently it occurs as a result of overemotionalism. Its relief lies absolutely in the correction of these basic conditions and not in the treatment of the heart.

Dr. James E. Talley, in discussing: As Dr. Brooks has intimated the paroxysmal form of tachycardia is differentiated from the ordinary form by graphic methods. I presume Dr. Brooks agrees that in the paroxysmal form the focus of origin is usually ectopic, whereas in the ordinary form the impulse arises in the sino-auricular node. I have always thought of palpitation as a rapid pulse, say 120 to 150, which caused the patient discomfort but which by graphic methods showed the point of origin was in the sinus. More often the accelerated pulse of exophthalmic goiter is of this type. However, this conception of palpitation is only one of many. Even in the recent report of the Medical Research Committee at Hampstead, palpitation is made to cover premature contractions, and groupings of such beats with the uncomfortable feeling in the chest due to this form of irregularity. They also refer to continuous palpitation which is an expression of rapid and vigorous heart action maintained under all conditions and more commonly present or severe during exercise or under emotion. The work done by Dr. Lewis and his co-workers at Hampstead among the recruits and soldiers breaking down under the stress of training and service is full of information for us. Because of the mobilizing and training of an army of a half million men during the next year, the very same problems are going to confront us, a problem of vast importance since a large part of these men under judicious treatment can be returned to their work.

Dr. James Tyson: I should like to correct the impression that I wrote the original paper on the "Irritable Heart of the Soldier." I think it was the late Prof. J. M. DaCosta, M.D., who wrote the first paper on this condition, at least in this country. It was based on observations during our Civil War. I wish I deserved the credit, but I do not.

Dr. George W. Norris: The subject presented by Dr. Brooks is one on which, I must confess, I have not thought as much as I perhaps should have. The paper will be valuable to us in tending to concentrate our attention on details and knowing exactly what we mean when we speak of palpitation. I find that I do have certain impressions about the condition without actually defining it to myself. It seems to me that the idea of the association of an extrasystole pointed out by Mackenzie does not correspond at all with my own observation and feeling in the matter. The idea that palpitation and paroxysmal tachycardia are synonymous conditions comes to me as an entirely new one, and I cannot altogether accede to the thought. Many people when they go to bed at night are conscious of their heart action though the heart is not necessarily rapid. It seems to me that by palpitation we mean perhaps a lowering of the threshold of nerve receptivity which makes us conscious of a perfectly normal action. In states of excitement we all are conscious of our heart action. Under such conditions it is rapid, but we can also be conscious of it when the heart is not rapid. It seems to me that palpitation is closely allied to pulsation of the abdominal aorta as seen in highly strung women. Pulsation of the aorta may be visible, but only at certain times is the patient conscious of it. There are times when the receptive nerve threshold has been lowered. According to this concept palpitation would be, generally speaking, an increased action on the part of the heart plus a lowering of the threshold. In studying these cases we ought to find out from the patient exactly what he feels when he says he has palpitation.

I was much interested also in what Dr. Brooks said regarding the gradual development and disappearance of paroxysmal tachycardia. I have noticed this in a number of cases, one of which I saw recently. A woman under treatment for well-marked hyperthyroidism had, when I saw her, a more rapid pulse than usual. During the fifteen or twenty minutes I spent with her the pulse went from 120 to 150 or 160. About an hour after I left I learned by phone that there was distinct pallor and that the pulse could not be counted. A study of the pulse curve showed that it had come down as gradually as it had gone up.

I should like to ask Dr. Brooks whether he has noted benefit following the employment of vagus compression. It is my personal experience that this is not at all useful in cases of this kind. There is at the present time at the Pennsylvania Hospital a man with paroxysmal tachycardia. He is a farmer by occupation and has had for years what seem to have been perfectly definite attacks. He goes on with his work throughout the attack. Earlier he used to stop work and throw himself down, but he is convinced that this does not shorten the attack; if anything shortens it, it is the work. This is in marked contrast to a woman also recently seen at the Pennsylvania Hospital. In this patient the attacks came on gradually and she was absolutely prostrated as the result of them.

I was also interested in what Dr. Brooks said in relation to the hyperthyroidism. I have a case now under observation. Although it never occurred to me that there was any connection between these two conditions, although in the present case there is no question of the simultaneous existence of hyperthyroidism and paroxysmal tachycardia.

Dr. Joseph Sailer: I have been intensely interested in the paper. I think with Dr. Norris that it will lead us to be more careful in the consideration of this condition, which in my own mind has been more or less hazy. The difficulty in the whole question is what we consider the definition of palpitation to be. There is going to be any amount of divergence in opinion if we limit our idea of palpitation merely to tumultuous action of the heart of which the patient is conscious. It is very much of a question whether we should include those cases of hypertension in which the patient is conscious of the action of the heart. The majority of such persons have the sensation of palpitation of the heart pretty regularly every night but when tension is diminished that consciousness disappears. It is a question also whether we are to consider as palpitation of the heart those conditions of tachycardia which occur in patients with severe valvular lesion and much distortion of the heart chambers. Those patients are very conscious of their heart action and often have associated symptoms. The question arises also whether we shall limit palpitation to those cases in which there is definite emotional disturbance in which the heart is normal.

Bringing the subject into the class of functional conditions, I do not know where these things come in. In some cases the glands and particularly the thyroids, are affected; or, it may be the vegetative nervous system is involved; probably there is depression of the autonomic, or excitation of the sympathetic. There has recently come under my observation on two occasions a case which to my mind is rather interesting in reference to this condition, because I think it is obviously not palpitation in any of the ordinarily accepted senses of the word. I have seen the patient only twice but on the first occasion the pulse rate was 22; the electrocardiogram showed complete heart block. The patient had under my observation an ordinary Stokes-Adams attack in which there was no evidence of the heart beat for several minutes. We placed the patient on alphathyroid which has some effect on the conduction fibers of the heart. Although the pulse rate was exceedingly slow and the electrocardiac tracing showed loss of all conduction power, nevertheless, on this treatment for three weeks the pulse went from 22 to 54 with entire cessation of even the slightest forms of the Stokes-Adams attack. The heart action was just about as before. The electrocardiogram shows extrasystoles. The important thing is that the ventricular action as developed by palpitation has become distinctly more violent. You can feel the apex beat at the anterior axillary line to the left; in the fourth, fifth and seventh interspaces less distinctly. This gives one the impression of violent palpitation. The effect has been brought about by a preparation derived from the thyroid gland. If we cease the administration of this material we may find a gradual reduction of the pulse rate and the disappearing of the apparent palpitation of the heart.

Another type of palpitation which seems to have some relation to this condition is that seen in women at the menopause, mentioned by Dr. Brooks. As we know there is a considerable belief on the part of certain physicians of large experience in these conditions in Philadelphia that the hypodermic administration of corpus luteum preparation is particularly useful in such cases. I have tried it a few times and sometimes the patients are perfectly delighted with the result. At other times there is no effect. In all these cases we sometimes wonder whether the whole effect is not purely psychic and not the result of the administration of the particular substance. Patients know that something unusual is given to them hypodermatically and perhaps in these cases where there is a distinctly emotional element the effect follows as a matter of course, not because of what is given, but because of this peculiar nervous influence which we like to believe is not so very important, yet which, if we could understand, might be one of the most important matters in our knowledge of medicine. I want to thank Dr. Brooks in my own behalf for his paper which I think has stimulated me more than any which I have heard for a long time.

Dr. E. B. Krumbhaar: Our conception of the nature of palpitation naturally depends on the definition that is given for the term, and we have already heard several definitions given tonight. In any case, however, I hope that it will always be differentiated from paroxysmal tachycardia in the restricted sense that that term has been used by cardiographers since the advent of graphic methods. As has already been said the true paroxysmal tachycardia is due to a rapid series of ectopic impulses usually arising in the auricle; and it is preferable to have the term reserved for this concrete conception. To the majority of clinicians I think palpitation means a subjective consciousness of the heart action; and this may occur either in organic or functional heart disease or with a perfectly normal mechanism. With this definition in mind a possible explanation of its causation would be that it was due to a lack of balance between the force of the overacting heart and the resistance of the arterial tree. Such a conception would also explain the arterial pulsations and substernal sensations that are common accompaniments of palpitation.

The electrocardiogram of aortic regurgitation is similar to that seen in hyperthyroidism particularly when palpitation is a marked symptom, in that the T wave is frequently very large, and lessened when the symptoms have improved. The T wave is not yet clearly understood but is considered by many to be equivalent to the force of contraction of the heart beat, and this would fit in well with the above theory. I have noticed in a series of Dr. Frazier's cases of hyperthyroidism that after operation the palpitation disappeared and that the T wave was much smaller or was entirely absent.

I think that palpitation should not necessarily be associated with simple tachycardia. For instance, when decompensation has set in, palpitation is rare; in the simple tachycardia of fever palpitation is seldom noticed.

I should like to ask Dr. Norris whether in his case of very rapid heart action that came on gradually and disappeared gradually, there was a chance to study it graphically. Also I would like to ask Dr. Sailer whether in the case he mentioned complete heart block was demonstrated by graphic methods.

Dr. H. A. Hare: The only reason I rise is to express my regret that other engagements prevented my being here when Dr. Brooks read his paper. I gather from the discussion that the definition given of palpitation is a condition, not necessarily of increased speed of the heart, but only a condition in which the patient feels the beating of the heart which in some cases may be increased in speed and in others not. If I had been asked to define cardiac palpitation I would describe it as a condition of increased cardiac action associated with sensation of distress on the part of the patient. I have never thought of palpitation as being applied to the patients complaining of strong or missed heart beats. If that is done you must include in palpitation, as possibly Dr. Brooks has done, those cases in which the patients complain of extrasystoles and other irregularities which cause them great alarm but do not come in the classification of palpitation as we used to know it. A point made by Dr. Krumbhaar which also may have been made by the reader of the paper is that in connection with the arterial tree. One of the things that has impressed me, in regard to these cardiac conditions, is the difficulty we have in remembering that the condition is a part of the whole mechanism. We are all interested in the electrographic and polygraphic studies and all our attention is centered on the heart and not on the condition of the blood vessels. It has been shown clinically that many cases of palpitation are due to sudden vascular relaxation without there being any organic condition of the heart. Some cases are due to disturbance of the internal secretions; others, to secondary nervous trouble. In one extraordinary case the pulse was never less than 200; we can rarely count a pulse above 200. This was in a woman of about 50 years of age who climbed on the roof of her house during the Johnstown flood and there saw her husband and son swept away in the current before she and her house were swept away. Three years afterward she still had this tachycardia of 200 without any vascular lesions. These cases are of great interest because to a great extent they upset our conception in regard to the damage done to the heart by great activity. In many cases of illness we feel that a pulse rate of 120 ought to be slowed down, lest the heart play out; yet in many of these cases of tachycardia the heart goes on for months and years when theoretically it should have played out.

I hope I have not gone far from the general idea of the paper of the evening. It would seem to me that palpitation might be divided into three groups: One in which there is some disorder of the internal secretion; second, a neurosis, probably due to disease; and third, a group in which the conditions are the result of some poisons generated in the body; intestinal poisons, or poisons from tobacco, or other factors which upset the nervous balance. Excessive sexual activity, debauches, etc., are causes which must be considered in all cases.

Dr. Robert G. Torrey: I am sure we have all enjoyed Dr. Brooks' paper immensely, and it will, I think, make us thoughtful regarding our definition of palpitation. I would ask Dr. Brooks in closing the discussion to do us a further service and tell us what term he employs to indicate the condition that we have heretofore called palpitation.

As we usually understand palpitation there are many types, notably that occurring in some cases of hyperthyroidism, the so-called irritable heart, the tachycardia of adolescence and the symptomatic palpitation which occurs in old cases of mitral stenosis and adhesive pericarditis. What term shall we use in referring to these periods of tumultuous heart action which are not definite paroxysmal tachycardia?

Dr. Brooks, closing: I find myself in a peculiar position to have to define again my meaning. My task is made very much easier by what Dr. Hare has said. His definition of tachycardia is essentially what I would propose for palpitation of the heart. I would define as palpitation, not the rapid action of the heart which occurs in hyperthyroidism which does not come on in paroxysms, nor yet the paroxysmal attacks of arrhythmia which are always of the same mechanism due to a definite organic lesion. I should speak of it only as palpitation when of apparently functional origin and of an inconstant form of arrhythmia. I would not consider the consciousness of the action of the heart as a palpitation nor even as an essential of it; perhaps you would, however, because you have just as much right to give a definition as I have; every one has a right to define his own palpitation, but my purpose is to group under this convenient term those attacks of tachycardia of inconstant and irregular type not apparently due to organic disease of the heart.

E. J. G. Beardsley, Clerk.

COUNTY SOCIETY REPORTS

BERKS—JULY

The Berks County Society held a joint meeting with the Schuylkill County Society at the Club House of the Blue Mountain Game and Fish Association near Hamburg, July 17. After a sumptuous banquet enjoyed by the 130 members and guests present, the meeting was opened by Maj. C. A. E. Codman, M. O. R. C., president of the state society, who addressed the members on "The Importance of Joining the Medical Reserve Corps Now." He urged the medical men to apply for commissions, and explained the urgency of the demand; this war not being a war of aggression or conquest, the atrocities committed by the enemy do not permit us to be neutral. There will be needed by November 1, 650,000 men, but 5,000,000 will be needed in the three years during which the war will probably be continued. England has 300,000 beds for soldiers; in every battle from 25,000 to 30,000 men are wounded. We are now trying to raise 10,000 medical men; 30,000 men will be needed. Men who have been conscripted cannot become officers. Men from 21 to 55 can enroll in the

Medical Reserve Corps. Those under 45 are sent into training camps. The Medical Council is composed of men like the president of the A. M. A.; Dr. F. Simpson of Pittsburgh; Dr. Davis of Jefferson Hospital; Dr. Kirk, Dean of Dentistry, University of Pennsylvania; Dr. VanLennep of Hahnemann Medical College; Dr. Edward Martin of Philadelphia; these men are working for the Medical Reserve Corps. Dr. Codman said that he has opposed the conscription of physicians, especially of Pennsylvania, because he feels that the men will respond to the call without being conscripted. The mortality is not as great as has been claimed; only 982 English doctors have been killed in the war so far. In the battle of the Somme, fifty-two English doctors were killed and 183 wounded.

Maj. H. D. Jump, M. O. R. C., spoke on "What Should Be Done at Home by Those Who Do Not Join the Corps." He said that 10 per cent. of the Schuylkill County doctors have enrolled and about 30 per cent. of Berks County. Pennsylvania's number is 1,800 doctors and of this number not yet 1,000 have enrolled. Those not eligible for work on the field can assist in improving the defects of those otherwise eligible; also in helping the diseased to convalesce and to examine recruits. Although we would naturally prefer not to go abroad we are compelled to do so by the acts committed by Germany and to assist the exhausted English and torn and bleeding France. It is better to fight abroad than to be compelled to fight the enemy here and let them devastate our fair land and destroy and kill our women and children as was done in Belgium.

Lieut. John D. McLean, M. O. R. C., ex-president of the Philadelphia County Medical Society, told us "Why We Should Join." When it became known that in two months Germany returned 88 per cent. of her wounded men to the front, while France returned but 23 per cent. of her wounded men, it became evident that on the medical men devolved the duty of returning a large army to the field. The medical officer receives a salary of $2,000 and more per year, out of which he can, if he chooses, save $1,500 for the use of his family, while those who stay home will attend his patients for him, giving part of the income to his family and return the patients to him on his return.

Capt. S. Leon Gans, M. O. R. C., president of the Physicians' Motor Club of Philadelphia, explained "How and What It Means to Join." He said that as soon as the Medical Reserve Corps officer receives his order signed by the Adjutant General, McLean, the doctor's pay commences. If he is wounded or killed in battle he is pensioned like any member of the regular army, but unlike these he receives no pension for old age because he has not devoted his life to the service. He explained the cost of the equipment, clothing, etc., also the necessity for men being in good physical condition so as not to be a burden to the others or to the United States.

Clara Shetter Keiser, Reporter.

BLAIR — JULY

The annual outing of the Blair County Society was held July 24 at the Ebensburg Inn, Ebensburg, Cambria County. There were thirty members with their families assembled, and they so thoroughly enjoyed themselves that all wished to have such an outing frequently.

The physicians of this county have made a splendid showing in applying for commissions in the Medical Officers Reserve Corps. Twenty-eight physicians from the county have made application, of whom twenty are from Altoona. Two physicians have already received their call. James S. Taylor, Reporter.

DELAWARE—JUNE

The regular monthly meeting of Delaware County Society was held at the County Home for the Poor of Delaware County, on June 21. The report of the committee on the care of practices for members of the society called away on account of the war, was presented and approved. It was agreed to charge the regular fees of the absentee and remit 35 per cent. to him. This percentage was to apply to all classes of work.

S. D. Luckie, D.D.S., of Chester spoke on "Oral Sepsis," his paper being illustrated by lantern slides. (The paper will be published in a subsequent issue of The Journal.) A general discussion was opened by A. Kassab, D.D.S., Chester.

Dinner was served at the close of the meeting.

W. E. Egbert, Reporter.

PHILADELPHIA — MARCH

The Philadelphia County Society met March 14, at 8:30 p. m., President Jump in the chair.

A paper on "Social Service" was read by Dr. C. P. Emerson of Indianapolis, Ind. We have approximately 170 social service departments in hospitals in this country, yet in very few is the same idea of service conveyed by these words. The work is so varied that it is doubtful if the term should be applied to all. As carried out in the hospitals the object of social service is to relieve the sick and educate the poor and in a broad way increase the efficiency of the hospital. Social service is not a charitable organization. It should, however, have full cooperation with every charitable institution in the city. In hospital and dispensary the great charity is the medical advice and the professional care, which charity is not at all appreciated as it should be by the patient or community.

Social service is not a sociological center. Reform work should be done but not with the dispensary or medical school as its center because social service is just as important a part of the work of a hospital as the other departments in bringing relief to those applying for it. An illustration is furnished in the instance of a baby brought for treatment of its eyes. One of our fourth-year students, under whose care the child came, learned that the father was earning but $9 a week, that the family lived in three rooms, and rented one of these. The poor little wife had lost all ideas she had ever had of housekeeping. The first thing that the student did was to get the man a $14 a week job. The family then moved into a whole house, the woman was encouraged in her housekeeping and the baby got well. Those several steps in social service were just as essential as medical treatment.

A most important part of social service is its effect on medical students in stimulating their interest in the problems of the poor. Two groups of patients in dispensary work helped more than others by the social service department are the nervous patients on the borderline of insanity, and those suffering from valvular heart disease. Such patients represent repeated admissions. By checking such readmissions through the social service work in changing the environment and manner of living of the patients the funds of the hospital are conserved. From our point of view, the result of some years of experience, the field of the social service is to help the hospital keep its tacit contract with the patient to relieve him of whatever condition he is complaining, whether such relief be obtained for him through medical, surgical or spiritual means.

Dr. George E. deSchweinitz: Social service, it seems to me, must have for its one foundation stone the fact that patients cannot be studied in groups, but as individuals with their own environment. Social service works in close connection with its medical affiliations, extending the work of the physician into the home. In the hospital with which I have the honor to be associated there are three lines of work which we attempt to pursue in our social service department: (1) Case work, the study of the individual and the endeavor to reconstruct him in social and physical well-being. Such case work includes necessarily family work and also what I may term, neighborhood work. (2) Community work, which has to do with the establishment of new centers, and the large field of referred work not strictly belonging to the social service department. (3) The field of research work. I am quite sure that social service properly conducted will do much in the conservation of health and the development of efficiency when small dispensaries shall be scattered throughout the city which may be supplied with social service workers. In only one point do I find myself somewhat in disagreement with Dr. Emerson; while I quite understand that the great problem of dispensary abuse cannot be "dumped" on the social service department, yet in selected cases we have come nearer, through social service, to solving the problem of dispensary abuse, than by any other method.

Dr. Wilmer Krusen, Director of Health: The municipal aspect of social service work is a matter of the highest importance. Since the first of January of this year the work of the Department of Health and Charity has increased very greatly by having had turned over to it the children who have come through the Municipal Court. Our social service workers cooperate with all the existing philanthropic agencies. We have opened also a department of occupational diseases and our social service workers are studying these problems under the supervision of members of our medical staff. In no field is social service more important than in tuberculosis work. The after-care of patients who have had anterior poliomyelitis is one of the most important functions of the Department of Health, and this phase of the work has been carried on through the cooperation of our social service workers with the Division of Child Hygiene. If there were paid to the city of Philadelphia the many thousands of dollars due from relatives of dependents in Blockley it would be possible to develop a social service department which would accomplish a vast amount of good in our municipality.

Dr. Richard H. Harte: I wish sincerely that the staffs and managers of our various hospitals could have heard Dr. Emerson's address. We are turning out from our wards an unfinished product and not conserving our funds as we should when we do not take advantage of the benefits of social service. We should have also a group of social service workers who should make a survey of the surrounding communities and study to correct the faulty conditions there existing. The whole question of medicine and surgery is the question of prevention and we shall never have our work carried on properly except from that point of view.

Dr. R. S. Hooker: Social service has done a great work in the class of patients needing to return to the dispensary for treatment after they feel practically well. This is notably true in syphilis. Because of the advance in laboratory work and the development of social service I believe that today can be launched a crusade against this disease not hitherto possible.

Dr. William Steele: I believe that if social service departments in representative hospitals did real social service work as outlined this evening, physicians would more fully avail themselves of its advantages and the public would supply the necessary funds.

Dr. S. Lewis Ziegler: The sphere of modern social service is educational, sociological and preventive. The qualifications of a social worker are practically those of a trained nurse. To acquire such qualifications attendance in a social service school is essential. The social worker must have some knowledge of the psychology of human nature. Character and environment are the chief factors to be studied. Consolidation of the scattered units of social service under one large central bureau of social service would not only promote efficiency but result in greater economy of administration. Such centralized bureau should have a card system of all the indigents and afflicted in the city. On request, daily reports should be mailed to individual organizations and they should send daily reports to the central bureau. It might be wise to have social service centers in each of the five sanitary districts of the city, but there ought to be social workers stationed in every ward who would acquire a knowledge of the needs in their respective districts. With the organization of the social service bureau the philanthropic activities of our city could be administered with a maximum of efficiency and a minimum of expense.

The Philadelphia County Society met March 28 at 8:30 p. m., President Jump in the chair.

"Uteroscopy versus Transperitoneal Hysterotomy" was presented by Dr. Alfred Heineberg. The methods employed in the diagnosis of intrauterine disease are undergoing almost the same changes which characterized the development of the precision in the diagnosis of diseases affecting other hollow organs such as the bladder, rectum, sigmoid and esophagus. A convincing demonstration of the value of the uteroscope in the diagnosis of obscure intrauterine lesions should combat the tendency toward diagnostic hysterotomy. Uteroscopy occupies a position midway between the conservatism and inaccuracy of the older methods of diagnosis and the radicalism and inherent dangers of transperitoneal hysterotomy. Its advantages over transperitoneal hysterotomy may be stated as follows:

1. It affords a perfect view of the interior of the uterus without subjecting the patient to the dangers attendant on invasion of the peritoneal cavity.

2. It may be performed quickly under nitrous oxid-oxygen anesthesia.

3. The patient experiences no more pain or discomfort than after an ordinary dilatation and curettage.

4. It affords a clear view of the cervical canal as well as of the uterine cavity.

5. The dilated cervical canal insures good postoperative drainage from the cavity of the uterus.

6. It will demonstrate that a very large proportion of cases of obscure intrauterine disease (89 per cent. of the series reported by Deaver) are nonmalignant and may be efficiently treated by the curet or placental forceps and thus avoid an unnecessary major operation.

"Observations on the Diagnosis of Leukorrhea" was presented by Dr. John M. Fisher. The purpose of the paper is to direct attention to causative influences, and misleading impressions, concerning the diagnosis of genital discharges of gonorrheal origin and to make some observations on the curability of the disease.

In women of lymphatic type of organization a relaxed state of the mucous membranes with consequent hypersecretion is not infrequently a symptom of slight constitutional disturbance. In others the discharge may depend on a vicious constitutional circle referable to a general nervous, circulatory, or glandular disturbance, or to vices in the habits, or the nutrition of the individual. Successful management depends on treatment of the responsible abnormality; local treatment is usually valueless and may do harm. Gonococcus infection in its clinical manifestations is usually most insidious. Points of first importance to the clinician are that primary acute gonorrhea and acute reinfections in the adult male, excepting among prostitutes, are comparatively infrequent, and that cases in which the infection pursues a semi-malignant course, with the same exception, are very rare. The most experienced laboratory men admit the limitations of microscopic examinations for gonococci in the genital discharges of the female. A report of "diplococci resembling gonococci" is often of less value to the clinician than his own studies of the tissue changes caused by the organism. An acute purulent urethritis, inflammatory swelling, and acute suppuration of the vulvovaginal glands are usually due to gonococcic infection; also the involvement of these structures in a chronic form, manifested by a painless mucopurulent urethral discharge, with suburethral thickening, or a painless induration, abscess formation, cystic enlargement of Bartholin's gland, presents reasonably reliable signs of this form of infection. Other evidences of diagnostic value are a flee-bitten appearance in the vicinity of the vulvovaginal ducts, the urinary meatus, or the vestibule; chronic purulent colpitis; endocervicitis with a discharge of pus. Gonorrhea in both sexes may be a curable disease but the infallible clinical or laboratory test of curability has not yet been discovered. In the treatment of leukorrhea in the adult female due to gonococci or suspected gonococcic infection, while the diligent bacteriologist may be able to demonstrate the gonococcus the clinician with a view of safeguarding the innocent should resort to every therapeutic measure to prevent possible eventualities in a given case.

"Etiology and Treatment of Constipation in Women" was presented by Dr. Harry A. Duncan. No successful treatment of constipation can be instituted until the etiology has been determined. Prophylactic treatment should be begun in early life. Children should be brought up on a mixed diet. During pregnancy women should be taught to overcome the tendency to constipation by proper exercise and outdoor life. The natural treatment of constipation not due to organic disease should be dietetic observance and physical exercise. The stomach will empty itself more quickly when the meal is followed by exercise, such as walking. For the helpless and the lazy, massage is an important mechanical aid. It can hardly be doubted that electricity will stimulate peristalsis. A more popular measure is local hydrotherapy. General hydrotherapeutic procedures are more useful in the nervous type of patient. The preferable medicinal measures are those mechanical irritants which are not absorbed from the intestinal tract. The use of drugs requires great caution and their laxative action does not differ from that of fruit. In the aged the common laxatives are aids to healthful function and of these aloes and cascara produce no habituation. Wagner has had good results with ovarian therapy in two cases of constipation of the climacteric. When medicinal measures fail Lane advocates surgery. W. J. Mayo states that the descending colon is always empty and that for this reason there can be no logical excuse for its removal. He removes 10 inches of the terminal ileum, appendix, cecum, ascending colon, hepatic flexure and a portion of the transverse colon and joins the ileum to the side of the transverse colon. With twenty patients he has had no mortality from this operation, and relief has been obtained in 87 per cent. of the cases. In the diagnosis of constipation our first duty is to determine whether we are dealing with a case of primary habitual constipation or with a symptomatic one. Thorough examination is indicated to exclude organic causes, such as cancer of the rectum or colon, disease of Houston's valves, O'Beirne's sphincter, or of the coccyx, disease or displacements of the uterus, tubes and ovaries. There should also be careful palpation of the abdomen to determine the condition of the abdominal walls, the presence of neoplasms, enteroptosis, or fecal impaction. Even with an apparently normal daily evacuation of the bowels latent constipation is suggested by the symptoms present. Thorough lavage of the colon may determine the presence of colitis, a common sequel of constipation.

Samuel McClary, III, Reporter.

UNION—JULY

The Union County Society met in annual session July 19 at Lewisburg, with eight members present. Officers were elected for the ensuing year as follows: President, Dr. Ralph Steans; vice-president, Dr. Harry Thornton; secretary-treasurer, Dr. A. V. Persing; reporter, Dr. William Metzger; censors, Dr. Thomas Thornton and Dr. William Leiser; committee on public policy and legislation, Dr. Charles A. Gundy, Dr. William Leiser and Dr. Paul H. Bikle. A sumptuous dinner, served by the ladies, was enjoyed by all.

A. V. Persing, Secretary.

A week spent at Pittsburgh next month will pay in many ways.

Pittsburgh is a good city for shopping.

Sixty-Seventh Annual Session of the Medical Society of the State of Pennsylvania

PITTSBURGH, SEPTEMBER 24-27, 1917

OFFICIAL CALL

Athens, Pa., July 14, 1917.

The Sixty-Seventh Annual Session of the Medical Society of the State of Pennsylvania is hereby called to meet at the William Penn Hotel, Pittsburgh, Monday, Tuesday, Wednesday and Thursday, Sept. 24, 25, 26 and 27, 1917.

The Trustees will hold their first meeting at the William Penn Hotel at 10 a. m., Monday, September 24, and daily at hours to be fixed.

The first meeting of the House of Delegates will be at William Penn Hotel at 3 p. m., Monday, September 24. The second meeting will in all probability be at 8 p. m. the same day.

All reports of officers and committees not already forwarded the Secretary should be sent at once so as to appear in the September issue of The Journal to be read by members before going to Pittsburgh.

The following amendment to the Constitution as proposed at the Scranton Session will come up for action at this session:

Amend Section 2, of Article IX, by substituting for the third sentence the following:

The terms of the Trustees shall be three years; three of whom shall be elected annually; no one, however, shall be eligible to succeed himself after he has served two full consecutive terms.

Charles A. E. Codman, President.

C. L. Stevens, Secretary.

HOTEL ACCOMMODATIONS FOR THE PITTSBURGH SESSION

The William Penn Hotel will be the official headquarters during the Pittsburgh Session, September 24-27, 1917. The officers of the society will be located there. All scientific, social and business meetings, the commercial exhibit and the registration will be held in this hotel, all on one floor.

Below is given a list of hotels and rates, European plan, per day. Members should write to hotels direct.

William Penn Hotel, Oliver Avenue and Grant Street: Single rooms, with bath, $2.50, $3, $3.50, $4, $5 and up. Double rooms, with bath, $4, $5, $6, $7, $8 and up.

Hotel Schenley, Grant Boulevard and Forbes Street: Single rooms, without bath, $2; with bath, $3. Double rooms, without bath, $3; with bath, $4 to $5.

Hotel Henry, 417 Fifth Avenue (one block from headquarters): Single rooms, without bath, $1.50 to $2. Rooms with bath, $2.50 up.

Seventh Avenue Hotel, Seventh and Liberty Avenues (two blocks from headquarters): Single rooms, without bath, $1.50 to $2; with bath, $2.50 to $4.

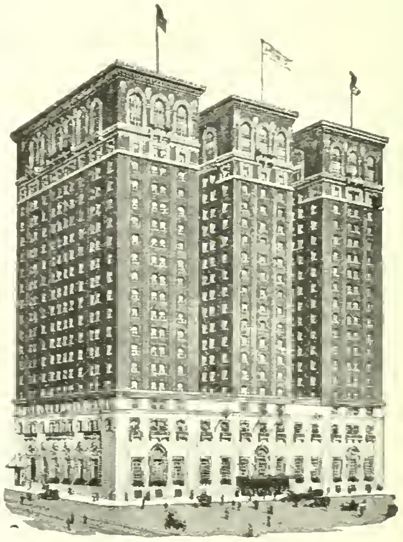
Fort Pitt Hotel, Tenth Street and Penn Avenue (four blocks from headquarters): Single rooms, without bath, $1.50 to $2; with bath, $2.50 to $5; with shower bath, $2 to $4. For two persons: room without bath, $2.50 to $3; with bath, $3.50 to $7; with shower bath, $3 to $5. For three persons: two connecting rooms, $4 to $5; with bath between, $6 to $11; with bath between, twin beds, $7.50 to $11. For four persons: two connecting rooms, $5 to $6; with bath between, $7 to $13; with bath between, twin beds, $12 to $13.

MEMBERS OF THE HOUSE OF DELEGATES

(The offset names are the alternates, and where street address only is given the name of the city follows the name of the county.)

ADAMS COUNTY

- Eugene Elgin, East Berlin, Pres.
  - Henry Stewart, Gettysburg, Sec.
- William E. Wolff, Arendtsville.
  - Harry S. Crouse, Littlestown.



Hotel William Penn——Headquarters

ALLEGHENY COUNTY (PITTSBURGH)

- John M. Thorne, 7036 Jenkins Arcade Bldg., Pres.
  - William H. Mayer, 7012 Jenkins Arcade Bldg., Sec.

(Term Expires in 1917.)

- Henry P. Ashe, 1304 Colwell St.
  - Henry C. Westervelt, 6101 Penn Ave.
  - William M. Woodward, 607 Fifth Ave., McKeesport.
- Adolph Krebs, Jenkins Arcade Bldg.
  - James D. McClure, 436 Rebecca Ave., Wilkinsburg.
  - Robert J. McCready, 909 Keenan Bldg.
- Willison H. McCombs, 26 S. Fourteenth St.
  - Hugh E. McGuire, Pittsburgh Life Bldg.
  - Thomas M. McLenahan, Greenfield Ave.
- Milton Goldsmith, Jenkins Arcade Bldg.
  - Calvin C. Marshall, 427 Charles St., Knoxville.

Arthur I. Murphy, 5310 St. James Terrace.
Amos W. Colcord, Clairton.
Herbert P. Crawford, Crafton.
J. Calvin Thompson, 503 Union Ave., N. S.
(Term Expires in 1918.)
William B. Ewing, Westinghouse Bldg. (deceased).
DeWitt B. Nettleton, Sewickley.
Charles E. Lindeman, 7047 Hamilton Ave.
Edward B. Heckel, Jenkins Bldg.
Richard E. Brenneman, Jenkins Arcade Bldg.
John Porter, 1000 Park Ave., McKeesport.
William S. Langfitt, Jenkins Arcade Bldg.
Charles K. Owens, Jenkins Arcade Bldg.
Ralph L. Hill, Carnegie.
Elmer E. Wible, Diamond Bank Bldg.
Arthur H. Gross, 688 Forest Ave., Bellevue.
Julius J. Clarke, 6104 Penn Ave.
Archibald A. MacLachlan, Empire Bldg.
William P. McCorkle, Sheridanville.
Thomas E. McConnell, New Kensington.
Samuel F. McComb, Tarentum.
Alanson F. B. Morris, 6901 Hamilton Ave.
Willet P. Hughes, 706 Highland Bldg.

ARMSTRONG COUNTY

Howard M. Welch, Leechburg, Pres.
Jay B. F. Wyant, Kittanning, Sec.
Charles A. Rogers, Freeport.
Andrew Sedwick, Kittanning.
Laird F. Kroh, Rural Valley.

BEAVER COUNTY

William C. Meanor, Beaver, Pres.
Boyd B. Snodgrass, Rochester, Sec.
Walter C. Arthur, Ambridge.
Francis H. McCaskey, Freedom.

BEDFORD COUNTY

William P. S. Henry, Everett, Pres.
Harry I. Shoenthal, New Paris, Sec.
Walter de la M. Hill, Everett.
Walter F. Enfield, Bedford.

BERKS COUNTY (READING)

Hiester Bucher, 142 South Fifth St., Pres.
Charles P. Henry, 846 Center Ave., Sec.
Frank P. Lytle, Birdsboro.
Israel Cleaver, 223 South Fifth St.
Ira G. Shoemaker, 19 South Ninth St.
H. Philemon Brunner, 122 Oley St.

BLAIR COUNTY (ALTOONA)

Gerald D. Bliss, 1220 Thirteenth Ave., Pres.
Charles F. McBurney, 710 Ninth St., Sec.
Joseph D. Findley, 802 Twelfth St.
Samuel P. Glover, 1118 Twelfth Ave.
W. Albert Nason, Roaring Spring.

BRADFORD COUNTY

Alpheus E. Dann, Canton, Pres.
George H. B. Terry, Wyalusing, Sec.
Perley N. Barker, Troy.
Willis T. Davison, Canton.
C. Manville Pratt, Towanda.

BUCKS COUNTY

Levi S. Walton, Jenkintown, Pres.
Anthony F. Myers, Blooming Glen, Sec.
Alfred E. Fretz, Sellersville.
Frank B. Swartzlander, Doylestown.
William J. Wilkinson, Sellersville.

BUTLER COUNTY

William J. Grossman, Butler, Pres.
Alfred H. Ziegler, Butler, Sec.

CAMBRIA COUNTY

James Jefferson, Johnstown, Pres.
Frank G. Scharmann, Johnstown, Sec.
Benton E. Longwell, Johnstown.
Harry H. Penrod, Johnstown.
Robert C. Davis, Johnstown.
Fremont C. Jones, Ebensburg.
James A. Lynch, Cresson.
William A. Prideaux, Expedit.

CARBON COUNTY

Ira E. Freyman, Weatherly, Pres.
Jacob A. Trexler, Lehighton, Sec.
Alexander Armstrong, White Haven.
J. Harrington Young, Lansford.
Stanley F. Druckenmiller, Lansford.

CENTER COUNTY

Lincoln E. Kidder, Boalsburg, Pres.
Marvin W. Reed, Bellefonte, Sec.

CHESTER COUNTY

Percy C. Hoskins, West Chester, Pres.
Joseph Scattergood, West Chester, Sec.
William T. Sharpless, West Chester.
Charles C. Bullock, West Chester.
W. Wellington Woodward, West Chester.

CLARION COUNTY

Sylvester J. Lackey, Limestone, Pres.
Franklin P. Phillips, Clarion, Sec.
Cuvier L. Clover, Knox.

CLEARFIELD COUNTY

William S. Piper, Clearfield, Pres.
John M. Quigley, Clearfield, Sec.
J. Frank Rowles, Mahaffey.
George A. Ricketts, Smithmill.
George B. Shivery, Woodland.

CLINTON COUNTY

Saylor J. McGhee, Lock Haven, Pres.
Robert B. Watson, Lock Haven, Sec.
Francis P. Ball, Lock Haven.
George D. Green, Lock Haven.

COLUMBIA COUNTY

Charles K. Albertson, Benton, Pres.
Luther B. Kline, Catawissa, Sec.
John W. Bruner, Bloomsburg.
Joseph Cohen, Berwick.
Samuel B. Arment, Bloomsburg.

CRAWFORD COUNTY

Glennis E. Humphrey, Cambridge Springs, Pres.
Cornelius C. Laffer, Meadville, Sec.
William B. Skelton, Meadville.
David C. Mock, Cambridge Springs.
John K. Roberts, Meadville.

CUMBERLAND COUNTY

Elmer A. Hudson, Carlisle, Pres.
Calvin R. Rickenbaugh, Carlisle, Sec.
Calvin R. Rickenbaugh, Carlisle.
Samuel E. Mowery, Mechanicsburg.
Enos K. Lefever, Boiling Springs.

DAUPHIN COUNTY (HARRISBURG)

J. Edward Dickinson, 228 North Second St., Pres.
Jesse L. Lenker, 402 North Second St., Sec.
Clarence R. Phillips, 1646 North Third St.
Thomas S. Blair, 403 North Second St.
Park A. Deckard, 709 North Third St.
J. Wesley Ellenberger, 922 North Third St.
John F. Culp, 410 N. Third St.
Carson Coover, 223 Pine St.

DELAWARE COUNTY

Harry M. Armitage, Chester, Pres.
Adrian V. B. Orr, Chester, Sec.
George H. Cross, Chester.
George B. Sickel, Chester.

ELK COUNTY

Henry H. Smith, Johnsonburg, Pres.
Jacob K. LeVan, St. Marys, Sec.

ERIE COUNTY (ERIE)

George S. Dickinson, 140 West Eighth St., Pres.
Maxwell Lick, 714 Sassafras St., Sec.
David H. Strickland, 153 West Seventh St.
Maxwell Lick, 714 Sassafras St.
Charles C. Kemble, 146 W. Ninth St.

FAYETTE COUNTY

Owen R. Altman, Uniontown, Pres.
Herbert E. Hall, Uniontown, Sec.
Jacob S. Hackney, Uniontown.
Clyde W. Conn, Uniontown, R. D. 3.
James L. Cochran, Connellsville.
Louis P. McCormick, Connellsville.

FRANKLIN COUNTY

Guy P. Asper, Chambersburg, Pres.
John J. Coffman, Scotland, Sec.
Theodore H. Weagley, Marion.
J. Elmond Kempter, Chambersburg.
William E. Holland, Fayetteville.

GREENE COUNTY

Thomas N. Millikin, Waynesburg, Pres.
Harry C. Scott, Waynesburg, Sec.

HUNTINGDON COUNTY

Fred P. Simpson, Mapleton Depot, Pres.
John M. Beck, Alexandria, Sec.
John M. Keichline, Jr., Petersburg.
Howard C. Frontz, Huntingdon.
Cloy G. Brumbaugh, Huntingdon.

INDIANA COUNTY

George E. Simpson, Indiana, Pres.
Medus M. Davis, Indiana, Sec.

JEFFERSON COUNTY

Harry B. King, Reynoldsville, Pres.
Norman C. Mills, Eleanor, Sec.

JUNIATA COUNTY

William H. Haines, Thompsontown, Pres.
Brady F. Long, Mifflin, Sec.
Benjamin H. Ritter, McCoysville.
Amos W. Shelley, Port Royal.
Joseph S. Brown, Okeson.

LACKAWANNA COUNTY (SCRANTON)

J. Norman White, 832 N. Main Ave., Pres.
Harry W. Albertson, 2416 North Main Ave., Sec.
H. W. Albertson, 2416 North Main Ave.
Frederick J. Bishop, 801 Prescott Ave.
Patrick J. Heston, 2602 Birney Ave.
Frederick P. Hollister, 508 Dime Bank Bldg.
Lucius C. Kennedy, 1030 Greenridge St.
Martin F. O'Malley, 306 W. Washington Ave.

LANCASTER COUNTY (LANCASTER)

J. Paul Roebuck, 233 North Duke St., Pres.
Horace C. Kinzer, 134 North Duke St., Sec.
Frank G. Hartman, 136 North Duke St.
Joseph P. Kennedy, Columbia.
John L. Hertz, Lititz.
Harry B. Roop, Columbia.
Clarence R. Farmer, 573 W. Lemon St.
Dale E. Cary, 204 East King St.

LAWRENCE COUNTY

Brant E. Sankey, New Castle, Pres.
William A. Womer, New Castle, Sec.
Jesse R. Cooper, New Castle.
Loyal W. Wilson, New Castle.
James M. Blackwood, New Castle.

LEBANON COUNTY

Walter H. Brubaker, Lebanon, Pres.
Charles M. Strickler, Lebanon, Sec.

LEHIGH COUNTY (ALLENTOWN)

Harry J. S. Keim, Catasauqua, Pres.
J. Treichler Butz, 304 North Ninth St., Sec.
Frederick R. Bausch, 109 North Second St.
David H. Parmet, 309 North Second St.
John B. Price, 1036 Hamilton St.

LUZERNE COUNTY (WILKES-BARRE)

Elmer L. Meyers, 239 South Franklin St., Pres.
Malcolm C. Guthrie, 109 South Franklin St., Sec.
Lewis H. Taylor, 83 South Franklin St.
Clarence W. Prevost, Pittston.
William C. Reese, 21 West Ross St.
Samuel P. Mengel, 181 South Franklin St.
William J. Davis, 225 Barney St.
Homer B. Wilcox, 165 Maple St., Kingston.
Harry L. Whitney, Plymouth.
C. H. Phillips, 130 South Franklin St.
Lewis Edwards, 790 Market St., Kingston.

LYCOMING COUNTY (WILLIAMSPORT)

Charles E. Heller, 221 East Third St., Pres.
Robert F. Trainer, 310 Elmira St., Sec.
Horace G. McCormick, 430 West Fourth St.
Robert K. Rewalt, First Nat. Bank Bldg.
George T. Ritter, First Nat. Bank Bldg.
Charles W. Youngman, 601 Pine St.
John A. Campbell, 831 Funston Ave.
Charles J. Cummings, 755 West Fourth St.

MC KEAN COUNTY

William C. Hogan, Bradford, Pres.
James Johnston, Bradford, Sec.
Henry J. Nichols, Bradford.

MERCER COUNTY

B. Edwin Mossman, Jr., Greenville, Pres.
Frank Bleakney, Grove City, Sec.
Paul T. Hope, Mercer.
Edwin M. McConnell, Grove City.
Clarence W. McElhaney, Greenville.

MIFFLIN COUNTY

Benjamin R. Kohler, Reedsville, Pres.
James A. C. Clarkson, Lewistown, Sec.
William H. Kohler, Milroy.
Alexander S. Harshberger, Lewistown.

MONROE COUNTY

Walter L. Angle, East Stroudsburg, Pres.
Esther W. Gulick, Stroudsburg, Sec.
Alvin A. Wertman, Tannersville.
William E. Gregory, Stroudsburg.

MONTGOMERY COUNTY

Herbert A. Bostock, Norristown, Pres.
Edgar S. Buyers, Norristown, Sec.
John E. Gotwals, Phoenixville.
Benjamin F. Hubley, Norristown.
Winfred J. Wright, Skippack.
Joseph K. Weaver, Norristown.
George R. Irwin, Bridgeport.
Elwood T. Quinn, Jenkintown.

MONTOUR COUNTY

Benjamin E. Bitler, Pottsgrove, Pres.
Cameron Shultz, Danville, Sec.

NORTHAMPTON COUNTY

Carl F. Welden, Bethlehem, Pres.
Fred E. Ward, Easton, Sec.
Delbert K. Santee, South Bethlehem.
Paul H. Kleinhans, Bethlehem.
William L. Estes, Jr., South Bethlehem.
Victor S. Messinger, Easton.
Charles Collmar, Easton.
Harvey C. Updegrove, Easton.

NORTHUMBERLAND COUNTY

Charles M. Thomas, Sunbury, Pres.
Horatio W. Gass, Sunbury, Sec.
Joseph C. Poffenberger, Sunbury.
Robert B. McCay, Sunbury.
Horatio W. Gass, Sunbury.

PERRY COUNTY

George W. Gault, Marysville, Pres.
E. Kenneth Wolff, Ickesburg, Sec.

PHILADELPHIA COUNTY (PHILADELPHIA)

Henry D. Jump, 4634 Chester Ave., Pres.
William S. Wray, 2007 Chestnut St., Sec.

(Term Expires in 1917.)

Wilmer Krusen, 127 North Twentieth St.
Charles R. Heed, 1402 Spruce St.
John F. Sinclair, 4103 Walnut St.
William S. Wray, 2007 Chestnut St.
William T. Hamilton, 932 West Lehigh Ave.
Moses Behrend, 1427 North Broad St.
George A. Knowles, 4812 Baltimore Ave.
Samuel P. Gerhard, 639 North Sixteenth St.
Mary Buchanan, 2106 Chestnut St.
Jay F. Schamberg, 1922 Spruce St.
Harry S. Carmany, 366 Green Lane, Rxb.
Bernard Segal, 1537 South Sixth St.
Samuel M. Wilson, 1517 Arch St.
Nathaniel S. Yawger, 2117 Chestnut St.
Frank A. Craig, 244 South Twenty-First St.
Hiram L. Lutz, 5525 Woodland Ave.
William J. Creighton, 1905 Chestnut St.
Benjamin F. Devitt, 1503 North Fifteenth St.
Thomas R. Currie, 512 West Lehigh Ave.
William Drayton, Jr., 330 South Seventeenth St.
Thomas I. O'Drain, 2546 East Allegheny Ave.
J. Norman Henry, 1906 Spruce St.
William H. Good, 5309 North Second St.
Frank C. Knowles, 2022 Spruce St.

(Term Expires in 1918.)

Herman B. Allyn, 501 South Forty-Second St.
John H. Musser, Jr., 121 South Twentieth St.
Samuel Ellis, 6203 Elmwood Ave.
J. Montgomery Baldy, 2219 DeLancey St.
John A. McGlinn, 113 South Twentieth St.
Henry Beates, Jr., 260 South Sixteenth St.
John D. McLean, 1538 South Broad St.
George P. Müller, 1729 Pine St.
George E. Shoemaker, 1831 Chestnut St.
John W. West, 1125 Wallace St.
John A. Roddy, 1732 South Ninth St.
John J. Robrecht, 3940 Chestnut St.
Charles F. Nassau, 1831 Chestnut St.
Henry K. Mohler, 258 South Sixteenth St.
Alfred Heineberg, 1642 Pine St.
Frank C. Hammond, 3311 North Broad St.
Howard D. Geisler, 35 High St., Gtn.
Albert C. Buckley, Friends Hosp., Fkd.
Howard A. Sutton, 314 South Fifteenth St.
Norman L. Knipe, 701 South Fifty-Second St.
Benjamin A. Thomas, 116 South Nineteenth St.
Martha Tracy, 5138 Wayne Ave., Gtn.
Charlotte S. Farrington, 2130 West Passyunk Ave.
Dorothy Donnelly, 213 Green Lane, Rxb.
Randle C. Rosenberger, 2330 North Thirteenth St.
Frederick Hurst Maier, 2035 Chestnut St.
Harry L. Merscher, 2217 North Broad St.
Henry D. Jump, 4634 Chester Ave.
Francis A. Faught, 5006 Spruce St.
Mitchell P. Warmuth, 1701 Chestnut St.

POTTER COUNTY

Hal A. Laye, Galeton, Pres.
Elwin H. Ashcraft, Coudersport, Sec.

SCHUYLKILL COUNTY

Gouverneur H. Boyer, Pottsville, Pres.
George O. O. Santee, Cressona, Sec.
George W. Ressler, Ashland.
David Taggart, Frackville.
T. Lamar Williams, Mt. Carmel.
George H. Moore, Schuylkill Haven.
George R. S. Corson, Pottsville.
John C. Gallagher, Shenandoah.

SNYDER COUNTY

Charles N. Brosius, Shamokin Dam, Pres.
R. W. Johnston, Selins Grove, Sec.
R. W. Johnston, Selins Grove.
G. Edgar Hassinger, Middleburg.
Edwin M. Miller, Beavertown.

SOMERSET COUNTY

Charles J. Hemminger, Rockwood, Pres.
H. Clay McKinley, Meyersdale, Sec.
Franklin E. Sass, Boswell.
George C. Berkheimer, Windber.
George F. Speicher, Rockwood.

SULLIVAN COUNTY

Martin E. Herrmann, Dushore, Pres.
Arthur J. Bird, Overton, Sec.
George C. Swope, Mildred.
Philip G. Biddle, Dushore.
Carl M. Bradford, Forksville.

SUSQUEHANNA COUNTY

T. Oliver Williams, Brooklyn, Pres.
Edward R. Gardner, Montrose, Sec.

TIOGA COUNTY

Wilmot G. Humphrey, Elkland, Pres.
Solomon P. Hakes, Tioga, Sec.
William A. DeWitt, Blossburg.
Charles R. Smith, Tioga.
Solomon P. Hakes, Tioga.

UNION COUNTY

Ralph Steans, Lewisburg, Pres.
Amos V. Persing, Allenwood, Sec.
Oliver W. H. Glover, Laurelton.
Ralph Steans, Lewisburg.

VENANGO COUNTY

Elmer L. Dickey, Oil City, Pres.
J. Irwin Zerbe, Franklin, Sec.
George B. Jobson, Franklin.
Elmer L. Dickey, Oil City.

WARREN COUNTY

Paul B. Stewart, Warren, Pres.
Floyd G. Shuler, Warren, Sec.
Paul Weston, Warren.
Harry W. Mitchell, Warren.
Paul B. Stewart, Warren.

WASHINGTON COUNTY

John B. McMurray, Washington, Pres.
Albert E. Thompson, Washington, Sec.
Charles C. Cracraft, Claysville.
Joseph W. Hunter, Charleroi.
Charles B. Wood, Monongahela.

William D. Martin, Dunns Station, R. D. 2.
Alexander N. Booth, Bentleysville.
*Henry L. Snodgrass, Buffalo.

WAYNE COUNTY

Robert W. Brady, Honesdale, Pres.
William T. McConvill, Honesdale, Sec.
Edward O. Bang, South Canaan.

WESTMORELAND COUNTY

Harold N. Prothero, Jeannette, Pres.
Myers W. Horner, Mt. Pleasant, Sec.
Edward M. Clifford, Greensburg.
James P. Strickler, Scottdale.
Robert P. McClellan, Jr., Irwin.
Walter H. Brown, Youngwood.
Charles D. Ambrose, Ligonier.
James Quinn Lemmon, Latrobe.

WYOMING COUNTY

Kennard J. French, Factoryville, Pres.
Herbert L. McKown, Tunkhannock, Sec.
Ralph M. Niles, Nicholson.
Herbert L. McKown, Tunkhannock.

YORK COUNTY (YORK)

Charles W. Eisenhower, 147 South George St., Pres.
Charles H. May, 1207 North George St., Sec.
William F. Bacon, 50 South George St.
George E. Holtzapple, George and Princess Sts.
J. Ferdinand Klinedinst, 220 South George St.
Curtis J. Hamme, Dover.
Charles Rea, 107 East Market St.
G. Emanuel Spotz, 11 East Market St.

Preliminary Program

GENERAL MEETING

BALL ROOM, WILLIAM PENN HOTEL

TUESDAY, SEPTEMBER 25, 10 A. M.

Call to Order by the President.
CHARLES A. E. CODMAN, Philadelphia.

Prayer by REV. WYATT BROWN, Rector of the Church of the Ascension.

Address of Welcome.
JOHN M. THORNE, Pittsburgh, President of Allegheny County Medical Society.

Presentation of Program.
HENRY D. JUMP, Philadelphia, Chairman of Committee on Scientific Work.

Announcements of Entertainments.

Introduction of Delegates from Other Societies.

Installation of the President Elect.

No. 1.

President's Address.
SAMUEL G. DIXON, Harrisburg.

(The Stenographer will collect all papers as soon as they are read.)

No. 2.

The Present Status of Drugless Therapists in the State of Pennsylvania. J. M. BALDY, Philadelphia.

OUTLINE. The law, method of regulation and licensure adopted by the Bureau of Medical Education and Licensure, with explanations of the same; legal interpretations of the medical act as concerns regulation of drugless therapy; various suits brought by the Bureau to sustain its position; legal decisions; advice of the Bureau as to future proper action by the medical profession.

No. 3.

Alcoholism; Some Complications and Their Treatment.
JOSEPH C. DOANE, Philadelphia.

OUTLINE. Brief mention of types of alcoholics, with suggestions on etiology. Brief comment on prognosis. Types of alcoholic delirium, with suggestions as to determining type. Treatment of delirium tremens. Magnesium sulphate treatment, indications and contra-indications. Intravenous alkaline treatment, technic; indications and contra-indications. Estimate of value of above treatments to the medical profession; brief outline of other types of treatment of alcoholic delirium.

No. 4.

Some Beneficial Results of School Medical Inspection.
WILLIAM W. MCFARLAND, Pittsburgh.

OUTLINE. Milk distribution to impoverished pupils. Control of school and municipal contagion. Physical and mental benefits from correction of physical defects. Hygienic and sanitary benefits. Education of the public.

WEDNESDAY, SEPTEMBER 26, 9 A. M.

No. 5.

Exhibition of an Improved Axis-Traction Obstetric Forceps. (5 Min.)
ELMER L. MEYERS, Wilkes-Barre.

SYMPOSIUM ON ARTHRITIS

No. 6.

General Considerations and Classifications.
LAWRENCE LITCHFIELD, Pittsburgh.

OUTLINE. Arthritis now regarded as local manifestation of constitutional disease. Classification based on actual clinical knowledge—a very simple one. Importance of differential diagnosis and methods. Treatment: Prophylactic, etiological, chemical, immunological and mechanical.

No. 7.

Roentgen-Ray Examination. (Lantern demonstration) (15 Min.) WILLIAM S. NEWCOMET, Philadelphia.

No. 8.

Metabolism and the Treatment of Arthritis.
RALPH PEMBERTON, Philadelphia.

OUTLINE. Possible causative foci should be removed. Many cases fail of cure, however. Metabolic and dietary considerations are then important. To be effective, diet must be accurately controlled according to the individual limitation of tolerance for the three food stuffs, especially carbohydrates. Undernutrition and other factors may limit treatment and a small percentage of cases fail to benefit. Many cases otherwise incurable, however, may be restored to health, and the disease is easily controlled in the early stages.

No. 9.

Diagnosis of Focal Sepsis.
JUDSON DALAND, Philadelphia.

OUTLINE. Regions of the body in which the focal sepsis occurs mentioned in order of frequency. Emphasis based on frequency of oral sepsis after middle life, and the tonsils prior to that period, as the common site of focal sepsis not infrequently causing systemic diseases, including arthritis. Stress laid on methods of diagnosing septic foci, and the line of action in doubtful cases. Occurrence of multiple and consecutive septic foci; relationship of lymphocytosis, a sign of systemic invasion from focal infection.

No. 10.

The Relations of Dental Conditions to Arthritis.
GEORGE C. SPEIRS, Philadelphia.

No. 11.

Relations of Orthopedic Conditions to Arthritis.
DAVID SILVER, Pittsburgh.

Discussion on preceding six papers opened by JOSEPH H. BARACH, Pittsburgh.

No. 12.

Dysentery and Its Relation to Camp Life. (By invitation) (20 Min.)
LT. COL. E. R. WHITMORE, U. S. A.,
Washington, D. C.

Thursday, September 27, 2 p. m.

No. 13.

Latent Pulmonary Tuberculosis in Its Various Disguises. **Myer Solis-Cohen**, Philadelphia.

Outline. Various types of disorders, neurotic, vasomotor, gastro-intestinal, asthenic, etc., due to tuberculous lesions in the lungs that cause no pulmonary symptoms, such as cough, expectoration, etc. Various neurasthenic, autonomic and gastro-intestinal symptoms occurring in such patients, as furnished by an analysis of fifty to one hundred cases.

SYMPOSIUM ON EQUILIBRIUM IN ITS RELATION TO MILITARY AND CIVIL DISABILITY

No. 14.

The Function and Apparatus of Equilibration.
B. Alexander Randall, Philadelphia.

Outline. Stability is a primary concept of our intelligence, and the need of securing it essential. Man's stabilizing apparatus is threefold—labyrinthine, ocular and musculocutaneous. Each partly independent, but easily disturbed or invalidated by perversion of the others. Darkness excludes ocular stabilization and eye-muscle palsy perverts it. Tabetic anesthesia or ataxia disables, due to lack of stimulation from the musculocutaneous system; and flotation or rapid motion and its momentum may incapacitate it. Labyrinthine static-kinetic apparatus the most capable of guiding it by itself; hence extreme importance of normal equilibratory apparatus not only in the end organ, but in the paths and the cerebral centers requisite to its full perception, and compensatory activities.

No. 15.

Medical Aspects of Aviation.
Isaac H. Jones, Philadelphia.

Outline. Candidates for aviation must size up to usual requirements for other branches of service and must have a normal balance-mechanism. The Bárány tests give accurate information as to the degree of function, not only of the internal ears, but also the entire balance-mechanism, including most particularly the cerebellum. The government requires that a man show a normal balance-mechanism before allowing him to become an aviator. Moving pictures of the tests required by the United States Army.

No. 16.

Clinical Studies of Vertigo.
Lewis Fisher, Philadelphia.

Outline. Vertigo is a disturbance of equilibration. Internal ear the chief organ of equilibration. Vertigo, therefore, an ear study. Presentation of cases of vertigo of various types with demonstration by moving pictures, of how the Bárány tests have determined the lesion causing the vertigo.

No. 17.

Paratyphoid and Its Various Types. (By invitation) (20 Min.) **Hans Zinsser**, New York.

Unfinished Business.

Announcement of Committees by the President.

Adjournment.

PUBLIC MEETING

Thursday, September 27, 8 p. m.

The Food Problems of This Country as Compared with the Problems in Germany.
Prof. A. E. Taylor, Philadelphia.

SECTION ON MEDICINE

Officers of Section

Chairman—**David Riesman**, 1715 Spruce St., Philadelphia.

Secretary—**Irwin J. Moyer**, 3525 Forbes St., Pittsburgh.

Executive Committee—**Alfred Hand, Jr.**, Philadelphia; **Thomas Grier Simonton**, Pittsburgh; **J. Wesley Ellenberger**, Harrisburg.

(The Secretary of the Section will collect all papers as soon as they are read.)

Tuesday, September 25, 2 p. m.

No. 1.

Address by the Chairman.
David Riesman, Philadelphia.

No. 2.

A Critical Study of the Treatment of Gastric Ulcer Based on Experimental Studies.
Martin E. Rehfuss, Philadelphia.

No. 3.

The Social and General Management of Gastro-Intestinal Diseases as Seen in the Medical Dispensary. **Archibald A. Howell**, Philadelphia.

Discussion opened by **Edward H. Goodman** and **John H. Musser, Jr.**, Philadelphia.

No. 4.

The Pharmacology and Therapeutics of the Ductless Gland Preparations.
Charles E. deM. Sajous, Philadelphia.

Discussion opened by **S. Solis-Cohen** and **Judson Daland**, Philadelphia.

No. 5.

Syphilis as a Factor in Diseases of the Thyroid Gland.
Thomas G. Simonton, Pittsburgh.

No. 6.

Hyperthyroidism.
William K. Walker, Pittsburgh.

No. 7.

The Clinical Value of Electrocardiography. (Lantern Demonstration.)
S. Calvin Smith, Philadelphia.

Outline. Method of examination. Investigations that established electrocardiography. Clinical diagnosis which it confirms. Diagnosis not possible by usual clinical methods. The normal and the abnormal electrocardiogram. Future: Early recognition and prophylaxis of cardiac disease. Conclusion: Distinct clinical advance, destined to take a place in every community with the microscope, Roentgen ray and other scientific instruments of clinical precision.

Discussion opened by **James E. Talley**, Philadelphia; **James D. Heard**, Pittsburgh.

No. 8.

Thoracic Aneurysm, a Brief Clinical Review of the Subject from a Diagnostic Standpoint.
William H. Mercur, Pittsburgh.

Outline. The object of this paper is principally to call attention to an excellent clinical method suggested by Dr. Herbert French of London, of diagnosing thoracic aneurysms by subdividing the thoracic aorta into sections according to the part from which the aneurysm is bulging. Charts and diagrams exhibited to illustrate Dr. French's points.

Discussion opened by **Lawrence Litchfield**, Pittsburgh; **Joseph Sailer**, Philadelphia.

Wednesday, September 26, 2 p. m.

Report of Executive Committee.

Election of Officers.

SYMPOSIUM ON NEPHRITIS

No. 9.

Pathology of Nephritis.
Oskar Klotz, Pittsburgh.

Outline. Difficulties in adequately understanding nephritis are our incomplete knowledge of manner of kidney secretion for different substances and inability at present to correlate results of functional tests with subsequent autopsy findings in the injured kidney. No agreement as to exact manner in which changes in kidney bring about urinary and systemic disturbances. Problem of pathology still awaiting exact information from the physiologist, though the pathologist has endeavored to follow the sequence of events which so insidiously takes place in the kidney and in its late stages confronts the clinician with some form of chronic nephritis. Most important etiological factor in man appears to be bacterial infection. Clinical evidence that a few nephritics have suffered attacks by bacteria which localize in kidney and also induce lesions in heart and arteries. Similar results obtained in animals. Mycotic infections prone to bring about interstitial and glomerular lesions.

No. 10.

Tests for the Measurement of Renal Efficiency in Relation to Prognosis in Nephritis. (20 Min.)
Henry A. Christian, Boston, Mass.

No. 11.

Classification, Prognosis and Treatment in Nephritis. (20 Min.)
Martin H. Fischer, Cincinnati, Ohio.

No. 12.

Composition of Sweat in Nephritis.
Joseph Sailer, Philadelphia.

No. 13.

The Social and General Management of Cases of Nephritis as Seen in the Medical Dispensary.
Thomas C. Kelly, Philadelphia.

Discussion on preceding five papers opened by Roy Ross Snowden, Pittsburgh.

No. 14.

Diagnostic Value of Spinal Puncture and Examination of Cerebrospinal Fluid.
John A. Kolmer, Philadelphia.

Outline. Diagnostic values of observations on pressure and physical appearance of cerebrospinal fluid, and of chemical, cytological, immunological and bacteriological examinations of the cerebrospinal fluid.

Discussion opened by Ernest W. Willetts and Theodore Diller, Pittsburgh.

No. 15.

A Case of Myotonia and Two Cases of Progressive Muscular Atrophy with Metabolism Studies in Each. Cornelius C. Wholey, Pittsburgh.

Discussion opened by Charles K. Mills and Theodore H. Weisenburg, Philadelphia.

No. 16.

The Mediastinum.
Chauncey L. Palmer, Pittsburgh.

Outline. Brief description of the mediastinum structures and their functions. Report of 10 cases of mediastinal conditions.

Discussion opened by W. W. G. Maclachlan and Henry Klinzing, Pittsburgh.

Thursday, September 27, 9 a. m.

JOINT MEETING WITH THE SECTION ON PEDIATRICS

No. 17.

Poliomyelitis; A Study of the 1916 Epidemic in Philadelphia.
Theodore H. Weisenburg and Simon S. Leopold, Philadelphia.

No. 18.

Poliomyelitis; The Importance of Its Early Recognition; the Value and Technic of Spinal Puncture. John F. Sinclair, Philadelphia.

No. 19.

Acidosis. (20 Min.)
John Howland and William McKim Marriott, Baltimore, Md.

No. 20.

The Practical Value of the Determinations of Acidosis by Various Clinical Methods.
J. Harold Austin, Philadelphia.

No. 21.

Eczema in Its Relation to Food Poisoning. (20 Min.)
Kenneth D. Blackfan, Baltimore, Md.

No. 22.

Food Anaphylaxis and Methods of Making the Tests.
Albert Strickler, Philadelphia.

No. 23.

Serum Treatment of Pneumonia.
Courtland Y. White, Philadelphia.

Discussion opened by J. Harold Austin, Philadelphia.

No. 24.

The Treatment of Pneumonia in Early Life.
Henry T. Price, Pittsburgh.

Discussion opened by H. Brooker Mills, Philadelphia.

SECTION ON SURGERY

Officers of Section

Chairman—A. Ralston Matheny, 1105 E.E. Trust Bldg., Pittsburgh.

Secretary—Donald Guthrie, Sayre.

Executive Committee—J. Torrance Rugh, Philadelphia; Floyd E. Keene, Philadelphia; Levi J. Hammond, Philadelphia.

(The Secretary of the Section will collect all papers as soon as they are read.)

Tuesday, September 25, 2 p. m.

No. 1.

Address of the Chairman.
A. Ralston Matheny, Pittsburgh.

No. 2.

Notes on the Operative Technic and After-Treatment of Inguinal Hernia.
Penn G. Skillern, Jr., Philadelphia.

Outline. Report based on a series of cases operated on to qualify for enlistment in Navy. The incision—isolation and ligature before division of superficial vessels. High division of external oblique aponeurosis, relation of iliohypogastric nerve to upper flap and ilio-inguinal to lower; importance of avoiding injury to these nerves, their rôle in nerve-blocking. Seek for sac in interval between internal oblique and cremaster muscles, close to internal ring; divide sac at this site and ligate with purse-string in healthy peritoneum; disposal of distal pocket of sac. In dissecting sac free, use sharp-knife feather-edge dissection instead of gauze, and avoid unnecessary trauma to coverings of cord and cord itself. When transposing cord elevate it with rubber tube. Adapt method of reconstruction of canal to degree of development of musculature of canal; advantages of Andrews' imbrication method. Always suture deep layer of superficial (Scarpa's) fascia. After operation place pillow beneath knees to relax sutured walls of canal. Importance of getting young patients out of bed at end of a week to prevent atrophy of muscles.

Discussion opened by William A. DeWitt, Blossburg.

No. 3.

Intestinal Obstruction with Relationship to Operative Procedures, and the Treatment Thereof.
Nathaniel Ginsburg, Philadelphia.

Discussion opened by J. Stewart Rodman, Philadelphia.

No. 4.

The Treatment of Fractures of the Neck of the Femur with Special Reference to Whitman's Abduction Method.
George M. Dorrance, Philadelphia.

Outline. Intracapsular fractures of the hip treated by means of Whitman's abduction treatment. The indications and contraindications for this treatment; its advantages over the other methods as to mortality, pain and results; the anatomical reasons for such treatment; the ease with which these cases can be cared for, and a general discussion of the subject.

Discussion opened by William P. Walker, South Bethlehem.

No. 5.

Pyelitis Complicating Pregnancy.
Harold A. Miller, Pittsburgh.

Outline. The frequency with which pyelitis occurs as a complication of pregnancy warrants its consideration and differentiation in all pregnant women where there is abdominal pain or albuminuria. Treatment very distinct and separate from treatment of other conditions giving similar symptoms. Must be instituted early and vigorously if results are to be secured. General medical profession must recognize the cardinal symptoms and differentiate it.

Discussion opened by **Elmer L. Meyers**, Wilkes-Barre.

No. 6.

Pneumococcic Peritonitis.
Evan W. Meredith, Pittsburgh.

Outline. Local manifestation of a pneumococcal septicemia. Possible paths of infection. Age and sex as predisposing causes. Two types: Diffuse and circumscribed. Symptoms and physical findings. Diagnosis from other forms of peritonitis difficult. Characteristic peritoneal exudate on opening abdomen. Mortality high in diffuse types.

Discussion opened by **Evan O'Neill Kane**, Kane.

No. 7.

Uteroscopy. **Alfred Heineberg**, Philadelphia.

Outline. History of previous attempts to inspect the interior of the uterus. Causes of failures in the use of previous instruments. Advantages and practicability of the original uteroscope presented by the author. Indications for its employment. Limitation of its usefulness. Advantages over older methods of intra-uterine diagnosis. Advantages over transperitoneal hysterotomy.

Wednesday, September 26, 2 p. m.

Report of Executive Committee.

Election of Officers.

No. 8.

A Review of Certain Postulates in Pelvic Surgery.
William Rowland Davies, Scranton.

Outline. A plea for a revision of the technical description of the pelvic retentive apparatus and a more careful understanding of its pathology, whereon a rational system of surgical repair can be built.

Discussion opened by **Harvey F. Smith**, Harrisburg, and **George B. Klump**, Williamsport.

No. 9.

The Radical Cautery Operation in Carcinoma of Cervix. **Xavier O. Werder**, Pittsburgh.

Outline. Operation consists in high cautery amputation of cervix combined with removal of remaining portion of uterus through an abdominal incision by means of electrothermic clamps. Advantage of this method is very low operative mortality, for the reason that sepsis, hemorrhage and shock, the principal causes of death in the radical operations for cancer of the cervix, are absent, while the five-year recoveries equal probably the best results obtained by any method.

Discussion opened by **John G. Clark**, Philadelphia.

No. 10.

Surgical Treatment of the Prostate.
Edward Starr Judd, Rochester, Minn.

Outline. Consideration of some factors which reduce mortality and improve convalescence. Factors which determine the reaction. Time required to perform the operation. Choice of anesthetic. Infection in prostate cases. Technic of the suprapubic operation.

No. 11.

Pathology of the Prostate.
William Carpenter MacCarty, Rochester, Minn.

No. 12.

Selection of Cases for Prostatectomy.
John B. Deaver, Philadelphia.

Outline. Emphasizing importance of preparatory treatment, directed to relieve back pressure at vesical outlet. Most cases infected before seen by surgeon. Best methods of removing infection. Suprapubic drainage method chosen whenever possible. Functional tests. Phenolphthalein. Acidosis is forerunner of uremia. Favors two-stage operation. Preliminaries, suprapubic cystostomy followed by prostatectomy. Suprapubic route in a great number of instances.

No. 13.

Remote Symptoms of Prostatitis and Spermatocystitis.
Theodore Baker, Pittsburgh.

Outline. Relationship prostatic hypertrophy bears to obscure local and general disturbances, cardiovascular, gastro-intestinal. Sacroiliac pain, sciatic nerve pain. Report of cases.

Discussion on preceding four papers opened by **Edward Martin**, Philadelphia.

Thursday, September 27, 9 a. m.

No. 14.

Treatment of Fracture of Patella.
Charles D. Schaeffer, Allentown.

Outline. Frequency. Fracture of right and left patella as revealed by Roentgen ray. Indications for operative and non-operative treatment. Results. Causes of complications of each method. Preliminary preparations for operative treatment. Operation productive of most satisfactory results to both patient and physician. After-treatment. Secondary operation, difficult technic and its result unsatisfactory. Nature of repair of this fracture.

Discussion opened by **Silas D. Molyneux**, Sayre.

No. 15.

The Constitutional Disturbance of Toxic Goiter as Influenced by Surgical Therapy.
Charles H. Frazier, Philadelphia.

Outline. A careful analysis of each case essential for proper direction of treatment. Disturbed metabolism as a guide to necessity for operation. Proper management of case after operation. Effect of operation on symptoms of toxicity, more particularly the nervous, circulatory and digestive disturbances.

Discussion opened by **Walter Lathrop**, Hazleton.

No. 16.

The Interrelation of Appendicitis, Cholecystitis and Pancreatitis. **Ernest Laplace**, Philadelphia.

Outline. Nature of various infections found in each condition. Virulence of infections vary constantly in different cases. Communicating avenues of infection may result in infection of the three structures. Necessity of a thorough examination of each when possible. Easiest method of procedure to ensure such examination. Indication for cholecystectomy to prevent subsequent reinfection.

Discussion opened by **George W. Reese**, Shamokin.

No. 17.

Tumors of the Breast.
John J. Buchanan, Pittsburgh.

No. 18.

Carrel-Dakin Treatment.
Jonathan M. Wainwright, Scranton.

Discussion opened by **Lyndon H. Landon**, Pittsburgh.

No. 19.

A Consideration of the Surgical Factors in Tubercular Peritonitis.
Levi J. Hammond, Philadelphia.

Outline. The pathologic anatomy differs widely, but differences are in amount of tuberculous deposits and secondary results, not in real nature of disease. Classification into exudative, adhesive and ulcerative is essential for a proper understanding of requirements in surgical treatment and prognosis.

Discussion opened by **Herbert B. Gibby**, Wilkes-Barre.

No. 20.

Cesarean Section in Eclampsia.
Charles G. Strickland, Erie.

Outline. Treatment of eclampsia must be individualized. Conservative and radical measures both have their place. Abdominal cesarean is procedure of choice in the eclamptic primipara at or near term with unobliterated and undilated cervix, and this as soon after first convulsive seizure as possible. Choice of anesthetics is ether. Report of cases.

Discussion opened by William E. Parke, Philadelphia.

No. 21.

Pus Infections of the Anorectal Region.
Curtis C. Mechling, Pittsburgh.

Outline. Sources of infection and the lymphatic spread. Trauma and thrombi formation, causative factors. Most common in adult males, rarely in infants or children. Sites of the abscesses, their recognition by inspection and digital examination. Drainage most important factor in treatment. Section of external sphincter muscle is necessary when pus focus is intrarectal. To prevent fistulas and to avoid mutilation are chief concerns.

SECTION ON EYE, EAR, NOSE AND THROAT DISEASES

Officers of Section

Chairman—John F. Culp, 410 N. Third St., Harrisburg.

Secretary—George B. Jobson, Franklin.

Executive Committee—Howard F. Hansell, Philadelphia; Robert Milligan, Pittsburgh; Clarence M. Harris, Johnstown.

(The Secretary of the Section will collect all papers as soon as they are read.)

Tuesday, September 25, 2 p. m.

No. 1.

Address by the Chairman.
John F. Culp, Harrisburg.

No. 2.

Corneal Ulcers
A. Rutherford Renninger, Philadelphia.

Outline. Seriousness of corneal lesions and a brief outline of anatomy of cornea. Description of most common traumatic lesions which lead to ulceration and various causes of infection; typical corneal ulcer with reference to onset, course and symptoms; various common types of ulcers classified according to bacteriologic findings; ulcers following lesions of trophic nerve supply of cornea; method for diagnosing various types of infected ulcers, from smears and cultures. Outline of general treatment. Special treatment in various types of infection (including serums, cautery and surgical procedure). Emphasis on protection of eyes in industrial occupation.

Discussion opened by Burton Chance, Philadelphia.

No. 3.

Glaucoma and the Various Methods of Treatment.
L. Webster Fox, Philadelphia.

Discussion opened by Edward B. Heckel, Pittsburgh.

No. 4.

Indications for Operation in Glaucoma.
William Campbell Posey, Philadelphia.

Discussion opened by William Zentmayer, Philadelphia.

No. 5.

Minor Eye Injuries and the Compensation Law.
Lester E. Schoch, Shamokin.

Outline. Effect Compensation Law has on doctor and injured person. Contusions of eyeball. Injuries to cornea, conjunctiva and deeper structures of eye. Characters of objects causing injury. End results. What constitutes the loss of an eye?

Discussion opened by John B. Corser, Scranton.

No. 6.

Herpes Zoster Ophthalmicus, with Report of Cases.
J. Ferdinand Klinedinst, York.

Outline. Unusual affection, usually attacking the supraorbital region and eyelids. Involvement of cornea and iris may occur. Most common in feeble, elderly persons with poor nutrition, although younger persons may be attacked. Said to be a specific infection, possibly contagious. Tends to spontaneous recovery. Treatment local and systemic. Report of three cases.

Discussion opened by Edward A. Shumway, Philadelphia.

No. 7.

Diseases of the Eye from Focal Infections.
Adolph Krebs, Pittsburgh.

Discussion opened by Edward Stieren, Pittsburgh.

No. 8.

Traumatic Sixth and Seventh Nerve Palsy, and Operative Treatment of the Same.
Timothy J. Moran, Pittsburgh.

Discussion opened by Lyndon H. Landon, Pittsburgh.

Wednesday, September 26, 2 p. m.

Report of Executive Committee.

Election of Officers.

No. 9.

Roentgen Examination of the Accessory Nasal Sinuses, with Interpretation of the Same.
David R. Bowen, Philadelphia.

No. 10.

Nonoperative Treatment of Nasal Sinusitis.
Eugene L. Vansant, Philadelphia.

Outline. Increasing conservatism in treatment of nasal sinus inflammation. Radical operations performed less frequently. Improved methods of diagnosis. Stereoscopic study of skiagraphs. Drainage and ventilation. Evacuation of secretions. Suction associated with positive pressure. Recognition of general as well as local conditions. Vaccines, etc.

Discussion opened by Lewis H. Taylor, Wilkes-Barre.

No. 11.

Treatment of Chronic Hypertrophic Rhinitis.
Edgar J. Stein, Lancaster.

Outline. Ideas conveyed by standard textbooks. Is chronic hypertrophic rhinitis a disease or a lack of development occurring in childhood? Chemical cautery. Surgical treatment. Electric cautery. Vaccine therapy. Conclusions. Various forms of treatment presented for comparison and to obtain in discussion the views of various members in regard to efficacy of the different modes of procedure.

Discussion opened by Nelson S. Weinberger, Sayre.

No. 12.

Laryngeal Tuberculosis.
Charles S. Rebuck, Harrisburg.

Outline. This complication of pulmonary tuberculosis frequently not given the care in diagnosis and management which it deserves. Importance of early diagnosis. Author's experience after five years as consulting laryngologist at Mont Alto State Sanatorium. Diagnosis and classification. Treatment of incipient and far-advanced cases. Statistics for past five years at Mont Alto.

Discussion opened by Samuel P. Glover, Altoona.

No. 13.

Pituitary Tumor; Operation by Transphenoidal Route.
Fielding O. Lewis, Philadelphia.

No. 14.

Hay Fever. Curtis Clyde Eves, Philadelphia.

Discussion opened by Evan O'Neill Kane, Kane.

No. 15.

"Hoarseness," Its Relation to Local and General Diseases. J. Homer McCready, Pittsburgh.

Outline. Strict attention to any alteration of voice, transitory or permanent. Obligation of general practitioner and laryngologist to patients with hoarseness. Importance of determining early the etiology. Etiology with regard to age, sex and occupation. Diagnostic methods employed and various branches of medicine involved to make a final diagnosis. Prognosis and outline of treatment.

Discussion opened by FIELDING O. LEWIS, Philadelphia.

THURSDAY, SEPTEMBER 27, 9 A. M.

No. 16.

Malignant Diseases of the Throat.
B. M. DICKINSON, Pittsburgh.

OUTLINE. Unsatisfactory attitude of profession and public as to malignant disease. Possible explanation of the same. Report of cases. Value of other than surgical treatment, especially radium and Roentgen ray. Need of concerted campaign by public and profession against malignant disease.

Discussion opened by CHEVALIER JACKSON, Philadelphia.

No. 17.

The Treatment of Malignancy in the Mouth and Throat by Radium.
RUSSELL H. BOGGS, Pittsburgh.

OUTLINE. Sufficient results obtained that it should be considered in every case, whether alone in small lesions, as a postoperative procedure, or as a palliative method in inoperable cases. Even smallest lesions prone to recur locally, and adjacent glands so early invaded that radiotherapy should follow surgical removal of even smallest growth. Many of earlier cases of epithelioma of the mouth and throat, before it has invaded the deeper tissues, will respond to one application. Precancerous lesions, such as leukoplakia, should be looked for and treated promptly. Advisable to consult experienced laryngologist before applying radium. Roentgenization of lymphatic glands should always supplement radium therapy.

Discussion opened by ARCHIBALD A. MACLACHLAN, Pittsburgh.

No. 18.

Acute Suppuration of the Middle Ear.
J. CLARENCE KEELER, Philadelphia.

OUTLINE. Acute suppuration and its subsequent impaired healing may in many instances be prevented or reduced to a minimum by a thorough and systematic examination of ears during course of all infectious and contagious diseases. In case of middle-ear suppuration or diseased tonsils it is essential to remove tonsils to prevent infectious fluids and secretions from entering tympanic cavity by eustachian. If drum is inflamed and bulging, free incision should be made to insure earliest possible drainage. Relative infrequency of suppurative labyrinthitis associated with acute suppuration of middle ear. Brief summary of anatomical structures. Course of mastoid involvement, and bacteriologic examinations of all secretions from tympanic cavity necessary aids to proper treatment.

Discussion opened by WILLIAM HARDIN SEARS, Huntingdon.

No. 19.

Abscess of the Lung Following Removal of the Tonsils.

JOHN R. SIMPSON AND HARRY G. NOAH, Pittsburgh.

OUTLINE. Review of literature with special reference to etiology. Report of two cases, in tuberculous subjects, following operation under local anesthesia. An attempt to show that the commonly accepted theory that aspiration is the etiologic factor in this condition will not explain these cases. Speculation as to probable cause.

Discussion opened by GEORGE B. WOOD, Philadelphia.

No. 20.

Foreign Bodies in the Bronchi and Esophagus. Report of Cases.

CHEVALIER JACKSON, Philadelphia, and ELLEN J. Patterson, Pittsburgh.

OUTLINE. Reports of cases and deductions therefrom. Reasons for low mortality in this series of cases. Dangers of inadequate instrumental equipment. Dangers to be avoided and methods of avoiding them. A new diagnostic sign of foreign body in the lower air passages.

SECTION ON PEDIATRICS

OFFICERS OF SECTION

Chairman—SAMUEL McC. HAMILL, 1822 Spruce St., Philadelphia.

Secretary—WILLIAM N. BRADLEY, 1638 S. Broad St., Philadelphia.

(The Secretary of the Section will collect all papers as soon as they are read.)

TUESDAY, SEPTEMBER 25, 2 P. M.

No. 1.

Address by the Chairman.
SAMUEL McC. HAMILL, Philadelphia.

No. 2.

The Influence of Prenatal Care in Infant Mortality.
CHARLES H. MINER, Wilkes-Barre.

No. 3.

The Management of Difficult Cases of Breast Feeding. HOWARD CHILDS CARPENTER, Philadelphia.

Discussion opened by THEODORE J. ELTERICH, Pittsburgh.

No. 4.

The Examination of Delicate Children.
HENRY R. M. LANDIS, Philadelphia.

Discussion opened by JOHN D. MCLEAN, Philadelphia.

No. 5.

Meningitis, the Different Forms and Their Diagnoses.
EDWIN E. GRAHAM, Philadelphia.

OUTLINE. Necessity of lumbar puncture. Importance of an early diagnosis, and of recognizing mild cases. Necessity of administering the antimeningococcic serum at once, where the spinal fluid is turbid. Technic of lumbar puncture. Differentiation from anterior poliomyelitis especially of the meningeal type.

Discussion opened by JAMES K. EVERHART, Pittsburgh.

WEDNESDAY, SEPTEMBER 26, 2 P. M.

Report of Executive Committee.

Election of Officers.

No. 6.

The So-Called Habit Spasm (Tic) and St. Vitus' Dance. (20 Min.)
CHARLES W. BURR, Philadelphia.

OUTLINE. St. Vitus' dance is probably due to an infection. Tic is the result, as a rule, of congenital protoplasmic weakness. Tic indicates danger to come quite strongly; St. Vitus dance, only weakly. Therapeutically St. Vitus dance needs bed rest and antirheumatics; tic requires graduated exercise and training.

Discussion opened by HARRY W. MITCHELL, Warren.

No. 7.

The Diagnosis and Treatment of Acute Otitis Media in Early Childhood.
GEORGE B. WOOD, Philadelphia.

OUTLINE. While an accurate diagnosis in the early stage rests on examination of the ear itself, there are symptoms which should lead us to suspect an involvement of the middle ear. Otorrhea is pathognomonic, while fever, unaccounted for by other conditions, restlessness, crying, putting the hand to the ear or other evidence of pain, demands examination of the ear; possible during general infections to have middle-ear inflammation in childhood without apparent symptoms. While palliative measures may bring about favorable results in less severe cases, paracentesis of drum should be done as soon as there is any evidence of tension in the tympanic cavity. To wait for spontaneous rupture is to subject patient to unnecessary risk of dangerous complications.

Discussion opened by RALPH BUTLER, Philadelphia.

No. 8.

The So-Called Common Cold.

Percival J. Eaton, Pittsburgh.

Discussion opened by James A. Babbitt, Philadelphia.

No. 9.

Pyelitis. Robert K. Rewalt, Williamsport.

Outline. Definition. More frequent before third year and in girls. Various germs found. Primary and secondary cases. Three routes of infection; Experimental work in support of each. Fever and pyuria most constant symptoms; less frequent, chills, irritability, restlessness and later anorexia, pallor and weakness. Leukocytosis, usual. Diagnosis depends on routine urine examinations. Differentiate malaria, typhoid fever and gastro-intestinal disease. Disease more frequent than generally supposed. Outlook favorable in primary cases and in secondary where previous condition has not rendered patient exhausted. Relapses common. Treatment prophylactic, dietetic and medicinal. Vaccine therapy worth a trial in obstinate cases. Pelvic lavage and bladder irrigations not recommended.

No. 10.

The Simpler Laboratory Methods and Their Value in the Study of the Diseases of Children.

A. Graeme Mitchell and Frederick C. Narr, Philadelphia.

Outline. Importance of laboratory examination in diseases of children is called to the attention of the practitioner. The analysis of breast milk, feces, urine, cerebrospinal fluid and blood is discussed under separate headings. Tests which are specially applicable to treating diseases and regulating diet in pediatric practice are described more or less in detail, and especial stress is laid on their interpretation and value.

Discussion opened by John A. Kolmer, Philadelphia.

No. 11.

The Employment of Opium in the Treatment of Children. (20 Min.)

J. P. Crozer Griffith, Philadelphia.

Discussion opened by Harry W. Albertson, Scranton.

Thursday, September 27, 9 a. m.

JOINT MEETING WITH SECTION ON MEDICINE

(See page 806.)

THE TRUTH ABOUT MEDICINES

NEW AND NONOFFICIAL REMEDIES

Since publication of New and Nonofficial Remedies, 1917, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies":

Hay-Fever Pollenin Spring-Mulford.—A liquid obtained by extracting the protein of the pollen of rye, timothy, orchard grass, sweet vernal grass, and red top grass and standardizing the solution to a definite protein content. This pollen extract is said to be useful for the prevention and treatment of spring "hay-fever." It is supplied in a four syringe package containing increasing doses of pollen protein and in a one syringe package containing the maximum dose. The H. K. Mulford Co., Philadelphia.

Hay-Fever Pollenin Fall-Mulford.—A liquid obtained by extracting the protein of the pollen of ragweed, golden rod and maize and standardizing the extract to a definite protein content. This pollen extract is said to be of value in the prevention and treatment of fall "hay-fever." It is supplied in four syringe packages containing increasing doses of pollen protein and in a one syringe package containing the maximum dose. The H. K. Mulford Co., Philadelphia.

Borcherdt's Malt Olive.—A liquid stated to be composed of olive oil 20 per cent., glycerin 10 per cent. and Borcherdt's malt extract 70 per cent. The Borcherdt Malt Extract Co., Chicago.

Citresia.—Magnesium acid citrate, the hydrated acid magnesium salt of citric acid. A colorless salt, very soluble in water and having a pleasant acid taste. It may be administered in place of solution of magnesium citrate by dissolving 25 gm. in 25 c.c. syrup of citric acid and 125 c.c. water. Horace North, New York.

Pasteur Antirabic Preventive Treatment (Harris Modification).—An antirabic vaccine prepared from brains and spinal cords of rabbits, dead of fixed virus rabies infection, and standardized by the method of Harris. One dose is given for a period of fourteen days. Each dose is sent out separately. Eli Lilly & Co., Indianapolis, Ind. (*Jour. A. M. A.*, July 7, 1917, p. 39).

Acetylsalicylic Acid, M. C. W.—A brand of acetylsalicylic acid complying with the standards of New and Nonofficial Remedies. Mallinckrodt Chemical Works, St. Louis (*Jour. A. M. A.*, July 21, 1917, p. 199).

PROPAGANDA FOR REFORM

Creosote-Delson and Creofos.—Creosote-Delson is said to be "beechwood creosote from which the irritating and caustic properities are removed by fractional distillation." It is marketed chiefly as Creofos. Creofos is said to be Creosote-Delson in an emulsion containing hypophosphites. The Council on Pharmacy and Chemistry declared Creosote-Delson inadmissible to New and Nonofficial Remedies because its identity and its difference from, and asserted superiority over the official creosote had not been established. It declared Creofos ineligible because its composition had not been satisfactorily declared, because the therapeutic claims were grossly exaggerated, because the name was nondescriptive of the composition and because the inclusion of hypophosphites was irrational (*Jour. A. M. A.*, July 7, 1917, p. 58).

Venarsen.—William A. Wilson, Kansas City, Mo., writes that he has advised the Intravenous Products Company that after using a great quantity of Venarsen, he can see no more effect on the cases treated than if so much water had been administered, and that this is also the report of Don R. Black, pathologist for Bell Memorial Hospital, University of Kansas (*Jour. A. M. A.*, July 7, 1917, p. 62).

Triner's American Elixir of Bitter Wine.—The Council on Pharmacy and Chemistry reports that this is a wine to which bitter drugs and laxatives have been added. Though evidently intended for public consumption, it is also advertised to physicians. The composition of this "wine"—some bitter drugs, a laxative and a tannin-containing, constipating red wine—and the advertising propaganda all tend to the continued use of this alcoholic stimulant and thus to the unconscious formation of a desire for alcoholic stimulation. As the medical journal advertisements may lead physicians to prescribe this secret and irrational preparation and thus unconsciously lead to alcoholism, the Council authorized publication of its report (*Jour. A. M. A.*, July 14, 1917, p. 139).

THE PENNSYLVANIA MEDICAL JOURNAL

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ORIGINAL ARTICLES

PORTAL OF ENTRY AND ROUTE OF INFECTION IN TUBERCULOSIS IN CHILDREN *

OSKAR KLOTZ, M.D.
PITTSBURGH

The problem of the mode of infection has been before the medical world for many years, and has formed the topic for research for many investigators. The nature of the infecting agent in tuberculosis has been known to us since 1882, the presence of the tubercle bacillus in a variety of discharges constituting sources of infection is well appreciated, the distribution of the micro-organism through different media has been demonstrated, while the nature of the lesion induced in the human body has been thoroughly investigated and reported by a great many. These studies have given us a clear conception of particular phases of the problem of tuberculosis, and relatively little concerning the practical side of the question remains. True it is, points of interest in other fields will keep awake the inquisitive spirit which is unwilling to rest until tuberculosis in man has been conquered, controlled or eradicated. But with all the tremendous work on these phases of the problem, there is no cordial agreement on the question of the mode of infection. Formerly, it is true, the confusion was greater than remains at present. We have sifted the evidence from many sources so that today our problem resolves itself into the interpretation of a few points, towards which it is necessary to collect more data before a final conclusion can be drawn. Individual statistics are insufficient to give the answer to many of these intricate problems in the biological sciences, for many are warped by factors not under the control of the investigator or are colored by personal enthusiasm. This has been so true of the problems in tuberculosis, not only in the work of transient investigators, but also in the teachings of authorative exponents.

In considering the mode of infection by any micro-organism we are not justified in drawing our conclusions until all the variable constants or the factors which modify the means of this infection have been clearly considered. This is not only true in tuberculosis, but also with the great variety of micro-organisms pathogenic to man. The unequal distribution of disease in various localities, at various age periods or in different tissues of the body has its definite reason governed by exogenous or endogenous circumstances. In the problem of tuberculosis, some very dogmatic statements have been made regarding the appearance of the tuberculous process in certain tissues of children as compared with those of the adult, and although the facts as presented by different observers are correctly shown, yet the inferences are most various and often erroneous.

It is well to appreciate at the outset that man may become infected by the tubercle bacillus in his tenderest years until the last days of ripe old age. To what degree there is a definite difference in susceptibility or tissue resistance is very hard to say. It is true that the frequency of active tuberculosis is not uniformly distributed through all periods of life, but this finding that the frequency of tuberculosis is higher at one time than another is insufficient proof of varying susceptibility. A very important factor and one which deserves the greatest attention is the opportunity which confronts each individual during his life for gaining infection. For some individuals, the children of tuberculous parents, the opportunity from the very day of birth for receiving tubercle bacilli is very great.

The examples of tuberculosis in the first few months of life are not so uncommon, and, in them, infections of the lung with or without generalized dissemination has been the reported type. But even if the child of tuberculous parents escapes infection during the first year, he is still imperiled during all the years that he remains in the care of a tuberculous household. But again we cannot draw too sharp a conclusion respecting the dangers of tuberculous infection from parent to child, as these dangers are in inverse ratio with the intelligence of these

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*Read before the Pediatric Society of Western Pennsylvania.

*From the Pathological Laboratories, University of Pittsburgh.

parents. The experiments of Bartel, showing that the rooms of tuberculous adults contain tubercle bacilli in sufficient quantity to give rise to tuberculosis in experimental animals when permitted to run about on freshly dusted carpets, are only evidence of the unsanitary household and deportment of the inhabitants. The mother with active tuberculosis, coughing over her infant in arms, can hardly hope for other than a tuberculous child. Naturally, these types of contact infection propagate the same form of tuberculosis, the human type, as is present in the original lesion. The statistics of Park and others indicate the frequency of such infection in the finding of twenty-three strains of the human bacillus in the lungs of children under 5, while there was only one similar infection due to the bovine type. Between the ages of 5 and 16, eleven human strains were obtained from the lungs, and no bovine type has as yet been isolated. As we shall point out later, we believe that these infections by the human tubercle bacillus were gained through the respiratory tract and that the alimentary tract in these pulmonary infections is a negligible quantity. I have had an opportunity of seeing only a few cases of active pulmonary tuberculosis in children under 2 years, but in these cases, the picture resembled that of the adult pulmonary type without evidence suggesting the alimentary route.

In his study of the manner of gaining infection by infants, La Fetra has found some interesting facts. The cases analyzed were, for the most part, in children under 12 months of age. Seventy-three cases of pulmonary tuberculosis which were so proved by analysis were shown to have been in children in the care of tuberculous parents, friends or nurses in 43.8 per cent. Similarly of fifty-eight children having tuberculous meningitis, thirty-six of whom also had definite lung lesions, 36.2 per cent. had been cared for by parents, friends or nurses with active tuberculosis. It is remarkable that this author was able to trace so many of the cases to their sources, and when we remember how frequently the exposure to a given infection may occur without our knowledge, it is with some surprise that a definite source was established in virtually 40 per cent. of all cases.

The child, however, enters an important period of its life after leaving its mother's arms. This is the time when the child, having been weaned, has a large part of its nourishment offered in the form of milk, raw or treated. The actual amount of milk which a child consumes during these years can readily be worked out for each, and when we then consider that at least 6 per cent. and more commonly from 10 to 12 per cent. of the milk received in cities contains bovine tubercle bacilli, there must be a very fair proportion of infected food received by the child. The actual number of tubercle bacilli ingested naturally varies. There may be periods when on a particular day the content of organisms is unusually high. We have at present no ready means of estimating the bacillary content, of the type under discussion, in our daily milk. Granted even that the milk is treated, there is always the danger of error in the technic or carelessness in the use of utensils. Undoubtedly, the protection afforded by pasteurization assists largely in minimizing the danger from infected milk, but it is only too true that much of the milk forming the diet of young children is offered in a raw state.

It is easy to appreciate the difference in the incidence in various communities of childhood tuberculosis, due to the bovine tubercle bacillus, based on the varying amount of tuberculosis in cattle and tubercle bacilli in their milk. We can hardly compare the statistics of Germany, Japan and the United States in as far as the incidence of tuberculosis arising from infected milk, because of the very great difference in the frequency of tuberculosis in the cattle of these various countries. It is extremely rare to have spontaneous infection of cattle by the human tubercle bacillus and we may accept it as the rule that the tubercle bacillus of milk is of the bovine type.

Here then the child is confronted by a new source of danger which in its earlier days was wanting. Not only does the infant run the gauntlet of an infection by the human bacillus from parents and associates, but now in childhood has a certain added danger of infection from food. It is during this period that the highest incidence of primary abdominal tuberculosis is recorded. Statistics on the subject are misleading, and in considering the frequency of primary pulmonary and primary abdominal tuberculosis in childhood we must be careful to consider only those cases in which there is undoubted evidence of the portal of entry. We are agreed that there is no hindrance to the development of primary tuberculosis of the lungs; likewise that a primary lesion may occur in association with infection by the alimentary canal. But a confusing factor arises in that from each of these primary sources secondary invasion may occur in distant foci including these sites themselves. It has been repeatedly shown that although children usually have but little sputum in pulmonary diseases, a secondary infection of bowel is not uncommon through the swallowing of the pulmonary discharges. To what extent the intestinal infection may give rise to pulmonary lesions is far from clear. In children under 5 the bovine bacillus has been isolated thirteen times from abdominal lesions, but never once have these given the presence of the bovine bacillus in the lung. On the other hand, the simultaneous presence of pulmonary tuberculosis and intestinal lesions due to the human bacillus are common.

It is pointed out by Woods Hutchinson that the belief, that while the pulmonary form of tuberculosis is both the commonest and the most frequent cause of death in adults, this is not the case in children, is erroneous. He also points out the error in the belief that certain organs and groups of tissues, notably the lymph glands, the bones and joints and the meninges, are the more frequent site of the disease. We still find the teaching that tuberculosis is a generalized disease in children and a localized one in adults. These views are being overthrown by the more recent statistics gathered from more thorough examinations. Wollstein, in a series of 1,131 autopsies on children under 3 years of age (60 per cent. under 1 year), found 185 (16.4 per cent.) with tuberculosis. She found that 11 per cent. of the children under 1 year of age, 35 per cent. between 1 and 2 years, and 27 per cent. between 2 and 3 years showed evidence of tuberculosis at autopsy. This incidence of tuberculosis found at the postmortem table may appear to some to be high, yet the clinical analyses of all children admitted to hospital wards show a still greater proportion. It is claimed that from 25 to 30 per cent. of all children give evidence of some tuberculous lesion. The further study of these cases has brought out other important points. It has been found that pulmonary lesions of children of all ages are equally important and frequent as the lung diseases of adults. Kossel has found as high as 93 per cent., Adams 90 per cent., and C. Y. White 100 per cent. involvement of lungs and bronchial systems in children with tuberculosis. These figures are interesting when we again remind you that the bovine bacillus has but once been demonstrated in these pulmonary lesions.

Tuberculosis in children under 3 years of age has a striking similarity in all its characters to that found in adults. The pulmonary lesions have their associated secondary processes or sequelae. Cavity formation is found in about one third of the cases, while a caseous involvement of the thoracic lymph glands appears in frequency and distribution not unlike that in older individuals. It is, however, more common to observe the caseous bronchopneumonia in the lungs at this age.

Routine autopsy examinations have been of exceptional value in indicating the distribution, route of infection and possible portal of entry in the invasion by the tubercle bacillus. Such analyses can be found valuable only when the examinations have been carefully made by a perfected technic and enthusiastic control. Intelligent search must be made by capable hands. I bring these rather obvious points forward because some variations in autopsy findings are due to personal error. With tuberculosis as with many other forms of infection we find that the evidence on which our conclusions concerning the transmission of the infection will be based must be gained through a thorough knowledge of the disease in the human. Animal experiment under apparently natural circumstances or under truly artificial conditions will teach us much in comprehending broad principles of infection, but it must be remembered that the results thus gained have been observed in an animal and that the conclusions apply to that animal and not necessarily to man. Successful experiments on infection in animals may be made to illustrate the possibility of certain modes of invasion. We may demonstrate the direct invasion of bacteria through minute scratches in the skin; the passage of bacteria through the unbroken mucous membranes without leaving a track along their route; the absorption of foreign materials by tonsils or Peyer's patches or the flow of lymph by devious channels from the mesentery to the intrathoracic organs. But, with all this, each of these demonstrations remains an isolated fact proved by animal experiment, but not necessarily forming a correlated story of the manner and mode of infection in man. Hence, again, I must plead for more thorough studies, both pathological and bacteriological, of human material. A few, and the numbers today are gradually increasing, well worked out human cases illustrating the nature of the infecting organism and in as far as possible the sequence of the tuberculous invasion, are infinitely more valuable for a thorough understanding of our human problem than interrupted and isolated facts gleaned in incomparable animal experiments.

In general, one may say that the tuberculous process in children differs in no material respect from the tuberculosis in adults. The pathological change in the tissues are the same in each instance and the manner of attack is also comparable. Bearing in mind, however, that the manner of contact in children differs somewhat from that of the adult, we find that the tissue distribution in certain localities differs in frequency at the two age periods. At the present time, we are not prepared to say that the tissues of the infant differ from the adult in their susceptibility to the tuberculous process. It is not yet definitely shown that the relatively larger proportion of lymphatic tissue in children is more vulnerable to the tuberculous process than in the later years of life. Shennan found, in 1,085 autopsies on children, 413 (37 per cent.) cases of tuberculosis. Of these cases there were 340 in which lymph glands were involved. In 106 cases in which "excavation" of the lungs was found, there were 42 without ulceration of the intestine. It is interesting, however, that in these cases showing pulmonary involvement there were twenty-two without intestinal ulceration having caseous processes in the mesenteric glands. This author believes that a part at least of these glandular infections had arisen from pulmonary infection and hence had developed by invasion through the intestinal wall without producing a recognizable intestinal lesion. Another interesting finding in this series is the presence of a considerable number (eighty-six) of tuberculous ulcers of the intestine in the absence of "excavation" of the lungs. To this the author states: "Even allowing for a large margin of error, there is still a sufficient number left to prove that, in this country at least (Scotland), primary ulceration of the intestine occurs frequently."

On the other hand in a series of 1,432 autopsies on children under 14 years, Comby found tuberculosis in 529 (37 per cent.). Thus the frequency of the occurrence of tuberculosis in early life is the same in Scotland and France. Comby, however, arrives at very different conclusions from those of Shennan. He states that he has never seen a single instance of primary tuberculosis of the intestine and, therefore, places no weight on the initial invasion through the bowel by infected milk. In this series, the glands about the trachea and bronchi appeared to be the most frequent tissues attacked. He concludes that tuberculosis of children is most frequently gained through tuberculous parents or friends by the respiratory tract.

In a series of sixty-two autopsies on children, Dunn found tuberculosis in twenty-five, in twenty-three of which it was the cause of death. The portal of entry was found in twenty-two, twenty times in the lung and twice in the intestine. The remaining three had caseous tuberculous peribronchial lymph glands without abdominal lesions. The intestines were ulcerated nine times, seven of them occurring as secondary infections. The mesenteric lymph nodes were never involved in the absence of intestinal lesions. In the two cases of primary intestinal tuberculosis with caseous mesenteric lymph glands, no intrathoracic tuberculosis was found.

Our own statistics on the incidence and tissue distribution of tuberculosis is based on an analysis of 477 autopsies in which a search for tuberculous foci was made in various parts of the body. It has been our custom to search every case carefully for a tuberculous lesion even in the absence of clinical manifestations or the absence of a lesion in the more common locations. A tuberculous process was met with in 170 cases out of these 477, giving a percentage of 35. As the majority of cases coming to autopsy were adults, there being only twenty-two children out of the total of 477 under the age of 10, these statistics are available for discussion on the dissemination of tuberculosis in adults as compared with children.

ADRENALS

Miliary tuberculosis	3
Obsolescent tuberculosis	4
Obsolete tuberculosis	2

APPENDIX

Tuberculous ulceration	2
Tuberculosis without ulceration	2

BLADDER

Tuberculous ulceration	2
Tuberculous cystitis	5

BONES AND JOINTS

Tuberculous arthritis	2
Tuberculous osteitis	4

BRAIN

Miliary tuberculosis	3
Obsolescent tuberculosis	1
Tuberculoma of cerebellum	1
Tuberculosis of pituitary body	1
Tuberculosis of choroid plexus	2
Tuberculosis of ependyma	4
Tuberculous meningitis	14

BRONCHI

Tuberculous bronchitis	1

EYE

Tuberculous choroiditis	1

HEART

Tuberculous endocarditis	4
Tuberculosis of myocardium	4

SMALL INTESTINE

Tuberculosis without ulceration	3
Tuberculous ulceration	13
Tuberculosis of bowel with perforation	1

LARGE INTESTINE

Tuberculous ulceration of cecum	6
Tuberculous colitis	2
Tuberculous ulceration of colon	14

KIDNEY	
Miliary tuberculosis	18
Obsolescent tuberculosis	3
Obsolete tuberculosis	3
Tuberculosis of pelvis	2

LARYNX	
Tuberculous ulceration	1

LIVER	
Miliary tuberculosis	21
Obsolescent tuberculosis	5
Tuberculoma	3

LYMPHATICS	
Miliary tuberculosis of peribronchial glands	6
Miliary tuberculosis of peritracheal glands	1
Miliary tuberculosis of mesenteric glands	2
Obsolescent tuberculosis of peribronchial glands	48
Obsolescent tuberculosis of peritracheal glands	9
Obsolescent tuberculosis of cervical glands	3
Obsolescent tuberculosis of mediastinal glands	8
Obsolescent tuberculosis of mesenteric glands	20
Obsolescent tuberculosis of omental glands	2
Obsolescent tuberculosis of iliac glands	1
Obsolescent tuberculosis of gastric glands	1
Obsolescent tuberculosis of retroperitoneal glands	12
Obsolete tuberculosis of peribronchial glands	70
Obsolete tuberculosis of peritracheal glands	10
Obsolete tuberculosis of mediastinal glands	2
Obsolete tuberculosis of mesenteric glands	9
Obsolete tuberculosis of retroperitoneal glands	1

LUNGS	
Miliary tuberculosis	37
Obsolescent tuberculosis	50
Obsolescent tuberculosis with cavitation	28
Obsolete tuberculosis	54
Caseous pneumonia	7
Caseous bronchopneumonia	4

MOUTH	
Tuberculosis of tonsil	1

ESOPHAGUS	
Tuberculous ulceration	1

PANCREAS	
Miliary tuberculosis	3

PERICARDIUM	
Miliary tuberculosis	2
Tuberculous pericarditis	4

PERITONEUM	
Miliary tuberculosis	6
Tuberculous peritonitis	10

PLEURA	
Miliary tuberculosis	12
Tuberculous pleurisy	5

PROSTATE	
Miliary tuberculosis	4
Obsolescent tuberculosis	3

SPLEEN	
Miliary tuberculosis	30
Obsolescent tuberculosis	6
Obsolete tuberculosis	40

STOMACH	
Tuberculous ulceration	1

THORAX	
Tuberculosis of diaphragm	2

THYROID	
Miliary tuberculosis	1

TESTES	
Obsolescent tuberculosis of epididymus	2
Obsolescent tuberculosis of seminal vesicles	2
Obsolescent tuberculosis of testicle	1

TUBES	
Obsolescent tuberculosis	1

UTERUS	
Obsolescent tuberculosis	1
Tuberculosis of cervix	1

As is shown in the accompanying table, the tuberculous lesions, on which our figures are based, were either of the acute, subacute or healed type. In making up such tables some difference of opinion may arise as to lesions rightly included in the obsolete group. No great difficulty should present itself in distinguishing the acute and obsolescent variety, but we have observed that some authors suggest a tuberculous basis for fibroses developing in various organs. The mere presence of heavy plaques of fibrosis in the pleura or elsewhere was not diagnosed as tuberculosis by us unless characteristic histological lesions could be observed microscopically. We have, however, included calcareous glands in the thorax among the number of obsolete tuberculosis. In a similar series of cases and based on a similar method of pathological diagnosis, Adami and McCrae found the incidence of tuberculosis in Montreal at 41.7 per cent. The table gives some interesting figures which in general bear comparison with that found elsewhere. The tuberculous lesions are far more common in the lymph glands than in other tissues. Healed lesions were observed seventy times in the peribronchial glands, ten times in the glands about the trachea and nine times in the glands in the mesentery. Again, caseous or obsolescent tuberculosis occurred forty-eight times in the peribronchial glands, twenty times in the mesenteric and nine times in the peritracheal. Obsolescent tuberculosis was present in the lungs seventy-eight times, in twenty-eight of which there were cavities. Healed pulmonary tuberculosis was recognized fifty-four times, while miliary was seen in thirty-seven cases. It is to be remembered in these cases that a combination of these different forms of tuberculosis was commonly found in the same case so that miliary tuberculosis was not uncommonly associated with a caseous condition in the same lung. Next in order of frequency was miliary tuberculosis of spleen with thirty cases. Miliary tuberculosis appeared in the liver and kidney twenty-one and eighteen times, respectively.

There is no gainsaying the greater incidence of tuberculosis within the thorax as compared with other parts of the body. This is true for all periods of life even though by selecting a short term of years in early childhood we demonstrate numbers in which apparently a greater frequency of tuberculosis is found in bowel and its appendages. The closer analysis of these periods of life has in recent times indicated that the percentages formerly exploited as showing the greater incidence of abdominal tuberculosis is not correct when an impartial search is given to other parts of the body.

Coming now to our main theme as to the manner in which tuberculosis is acquired in childhood we find that there is no evidence that it differs very markedly from adults. This is even true in the face of the fact that a certain number of children develop a primary intestinal bovine tuberculosis and in consideration of the varying incidence of these lesions in communities where infection of milk is great. If we rule out this mode of infection by a proper treatment of milk there still remains the most important part of our problem in the great proportion of tuberculous children whose disease has been acquired through the respiratory tract. That infection by the alimentary canal is a factor of importance must not be lost sight of and every possible means should be taken to eliminate this source. That, however, our more important problem lies in the disease acquired by aerogenic means appears clear. Tuberculosis as a disease of childhood is one having to do with the pulmonary system. The fact that the statistics up to the present show that the bovine bacillus is almost never the infecting agent of the lung is evidence that we can lay no stress whatever upon the generalized tuberculosis arising from the bowel. Criticism which may be brought to bear upon the statement that the oldest lesion is so commonly found in the peribronchial glands, is insufficient reason, when theory alone is offered to supplant these definite findings. Admitting that the tubercle bacillus may pass through mucous membranes without leaving a mark at the point of entrance we must, in an endeavor to follow its subsequent routes, show the pathway along which it has traveled and left unmistakable signs.

The route of travel by the tubercle bacillus is readily defined within the thorax. The passage of micro-organisms and inert particles can be demonstrated from the lumina of bronchi, bronchioles and pulmonary alveoli. The entrance into the lymphatic stream and their carriage by phagocytic cells may be readily demonstrated in man and animals. The development of the characteristic lesion and the process of caseation can be easily followed through the various stages. The subsequent dissemination by the blood stream to the lungs and distant organs no longer forms a mystery in the study.

Of primary infection of the tonsils we have little to say. That it may occur is obvious, but in our own experience it is more usually a secondary infection from the lungs. Nevertheless infected tonsils whether primary or secondary may give rise to tuberculous processes in the neighboring superficial lymph glands. An interesting finding having some bearing upon cervical adenitis is observed in the advance of the tuberculous process from one gland to another. It is not uncommon to find a chain of peritracheal lymph glands, involved in tuberculosis, extending from an old caseous process in the lymph glands at the bifurcation. In these instances, and they are the usual, the most marked involvement is in the lowermost intrathoracic group while a lesser and diminishing process is found in the successive glands as we advance upwards along the trachea. I do not think that there is any direct association between these deep peritracheal and the superficial groups. The converse of this is also true, that is where the tuberculous cervical adenitis has begun from infected tonsils there may be a localized infection of the superficial group, but rarely if ever do we find a direct lymphogenous transference into the thorax and lungs. It is of course to be remembered that a tuberculous process in any portion of the body may give rise to a disseminated hematogenous tuberculosis.

Thus broadly in children as in adults the intrathoracic tuberculosis bears a much greater importance as the primary seat of infection as well as the severity of the induced disease process. The child acquires this tuberculous process by droplet infection through the respiratory tract. It is not uncommon that the intrathoracic lymph glands are involved early and dissemination to other organs takes place from these structures. An alimentary infection probably occurs more commonly in children than in adults but has no great significance in the subsequent development of pulmonary tuberculosis. Other portals of entry, as the skin, mouth, tonsils, nose and genitalia, play little or no part in bringing about other than localized lesions, and the discussion of them should not confuse the issue of the broader problem of tuberculosis.

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TUBERCULAR CONDITIONS OF THE EAR, NOSE AND THROAT *

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Primary tuberculosis of the ear is rarely met with, but secondary tuberculosis of the middle ear is fairly common and is characterized by a painless beginning and usually running its course without any inflammatory phenomena. In the exceptional cases when you have had an early opportunity to examine the drum membrane you will find at one or more places circumscribed pearly gray spots of tubercular nodules, later ulcers form and then the membrane becomes perforated in two or three places. The discharge is usually thin and fetid and the destruction of the membrana tympani is rapid and extensive and the tympanic cavity walls are soon stripped of their mucous membrane. Caseation of glands under the ear soon occurs, a symptom which Politzer regards as conclusive evidence of tuberculosis, although I have seen many who did not have any glandular involvement.

Tuberculosis of the nose usually occurs in the cartilaginous septum as an indented, swollen-edged ulcer with a dirty rough base. The symptoms are moderate amount of secretion and obstruction due to swelling of the turbinals or crusts. Tuberculosis of the postnares has the same slow-healing indented crater-like ulcer which refuses to yield to most remedies. My patients' chief complaints were dropping in the throat and pain on swallowing, with much crusting and pus formation under the crusts.

Tuberculosis of the pharynx usually occurs on the posterior wall in the neighborhood of a follicle which infiltrates and caseates. Tuberculosis of the tonsil is peculiar in that the tonsil rarely ulcerates and the tubercle bacilli are more frequently found in the glands of the neck, below the tonsil. In this connection the investigations of Professor George Cornet (Berlin) on scrofulosis (1894, page 83) showing the way infection takes place is interesting and of value. "Slight rubbing of the tubercle bacilli into the mucous membranes of the nose, taking care not to injure the mucous membrane, was followed in a few weeks by the glands of the neck on the same side becoming swollen and caseated. In a few weeks the bronchial glands became tubercular, then the lungs and later the spleen and liver. Whereas, if the mucosa was injured during the rubbing, then inflammation and ulceration took place at the site of this injury. If, however, the tubercle bacilli were inhaled directly into the lung tissue, no matter whether sputum or culture, whether moist, sprayed, dried or pulverized, in two or three weeks very small greyish white spots became visible in the lung and caseation soon took place." Surely this shows how easily an infection can travel by lodgment on the mucosa of the nose or throat and can be carried directly by the lymph to the glands of the neck, lungs, liver, etc. It may explain why some develop tuberculosis of the lungs and some tuberculosis of the glands, the foci of the infection depending on its mode of ingress. In some of the cases at the Presbyterian Hospital in which I have performed the operation we have made cultures and sectioned; lately one patient referred by Dr. Hodge had tuberculosis in the tonsil alone, while on the same day one of Dr. Laws' patients was found to have the tubercle bacilli not in the tonsil but in the adjacent gland. It may filter through one gland to be stopped in another where it caseates.

I think the great majority of cases of tuberculosis in the young occur in the glands of the neck or peritoneum, whereas in those past 16 years the lesion occurs in the lungs, larynx or peritoneum. In these cases many physicians agree that over 40 per cent. of all tubercular patients have an involvment of the larynx and so able an authority as Bishop (Chapter 26, page 304) reports 30 per cent. as involved. In our own state Dr. Alexander Armstrong of White Haven believes that 50 per cent. of tubercular patients have laryngeal involvement. I believe if more physicians were equipped to examine the larynx we would find a higher percentage. Most authorities are agreed that tuberculosis of the larynx is seldom a primary condition. Laryngeal tuberculosis is usually secondary to tuberculosis of the lungs. The reason for this is readily understood when we consider the anatomy of the larynx, trachea and the lungs. The constant irritation of the larynx by poorly tempered air from a diseased nasal mucous membrane predisposes to an ulceration of the larynx. The lowered body vitality gives the patient a dry mucosa. The imperfect air striking this dried membrane irritates and inflames it; here the tubercle bacillus finds a suitable resting place and soon we have an ulcerated area started. This may heal but more bacteria are coughed from the diseased lung and we have a reinfection and constant reinfection. We have an overwhelming number of bacteria constantly flooding the larynx and

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* Read before the West Philadelphia Medical Association.

the wonder is that any larynx ever escapes. Whenever I recall my tubercular cases at Blockley with the crowded tubercular wards, I invariably think of a swollen epiglottis or ulcerated arytenoid in combination with a cough. Cough with a constant hoarseness or weak voice is a suspicious sign of tuberculosis of the larynx, especially in a tubercular subject. Many times the vocal cords may be white and normal in color and apparently in action but the voice hoarse; this is due to the arytenoids usually being attacked first, their swelling causing an imperfect action of the arytenoid muscles with a resulting tired feeling and a hoarse voice. Another frequent symptom is dysphagia caused by the ulceration extending from the arytenoids to the epiglottis. Food passing over the swollen arytenoids causes intense pain; many times the epiglottis is involved and the food crossing over the exposed nerve filaments of the ulcerated areas causes intense agony, so great that the patient prefers to starve. My first ideas associated tuberculosis with profuse hemorrhages, but this has been changed and I have seen more patients die of starvation than hemorrhage. I have found tubercular cases to be in one of four stages: premonitory, acute, quiescent, or incurable.

PREMONITORY STAGE

GENERAL SYMPTOMS

1. Exhaustion easily induced.
2. Dry or tickling throat.
3. Increased pulse rate, 84 to 96.
4. Indigestion attacks.
5. Mental agitation, depression.
6. Dry cough on exertion.
7. Slight loss of weight.
8. Lowered arterial tension.
9. Slightly increased temperature (if taken every two hours).
10. Shortness of breath on slight exertion.

TREATMENT

1. Daily naps.
2. Soothing oil sprays. Avoid coughing (cold water will stop it).
3. Soothing oil rubs; no massage.
4. Suitable remedies.
5. Sunlight and cheery companions.
6. No exhausting exercise.
7. Forced feeding.
8. Deeper inspirations to increase pulmonary ventilation.
9. Women, rest during menses.

LOCAL SYMPTOMS

1. Unnatural paleness of mucous membranes.
2. Occasionally hyperemic arytenoids, cords or epiglottis.
3. Attacks of laryngitis (acute), premonitory dysphonia.
4. Obstructed nares, hypertrophied tonsils.
5. Pharyngitis sicca.
6. Enlarged glands which spread.
7. Interarytenoid mucous membrane thrown into velvety folds.

TREATMENT

1. Absence of irritant, no smoking.
2. Cleanliness of mouth and throat.
3. Astringents.
4. Removal bent septum or diseased adenoids and tonsils, the starting point of tracheitis and bronchitis.
5. Opening softened glands.

ACUTE STAGE

GENERAL SYMPTOMS

1. Hoarseness, constantly.
2. Cough; in children dry, convulsive but no vomit.
3. Lump in throat or pain.
4. Hyperplasia of pharyngeal vault.
5. Swelling neck glands.
6. Palpitation, irritable heart action.
7. Early morning wakening.

TREATMENT

1. Absolute rest of voice.
2. Rest in bed if over 100 F.
3. Zinc sulphate, 5 per cent., to larynx.
4. Galvanic cautery to follicles.
5. Iodoform, crystalline form.
6. Heart remedies by family physician.
7. Daily nap to take place of rest lost by wakefulness at night.

LOCAL APPEARANCE OF LARYNX

1. Rose-colored hypertrophy or thickening of arytenoids or epiglottis.
2. Greyish wrinkling, or elevation posterior commissure.
3. Thickening of the false cords causing hoarseness.
4. Thickening arytenoid-epiglottis fold is pathognomonic (Dr. Miner, Asheville).
5. Small ulceration areas.

TREATMENT

1. Menthol and oil, 10 per cent. solution, dropped in larynx.
2. Alum in commissure.
3. Hot flannels to neck.
4. Hot inhalations.
5. Lactic acid, 25 per cent., to ulcerated areas and orthoform tablets.

QUIESCENT STAGE OR STAGE OF ARREST

GENERAL SYMPTOMS OF PATIENT

1. Short breath, usually.
2. Chilly feeling, cold feet and hands.
3. Frequent colds in head.
4. Constant hawking from leaky mucous membranes.
5. Ear discharge.

TREATMENT

1. Rocker brigade on sunlight porches.
2. Hot water bags in afternoon.
3. Warm clothing.
4. Nose and throat treatments with systemic remedies.
5. Avoid draughts and wet feet.

LOCAL APPEARANCE OF LARYNX

1. Anemic throat.
2. Healed or contracted scars.
3. Hoarseness.
4. Dumbell-shaped arytenoids.
5. Infiltrated epiglottis.

TREATMENT

1. Sprays of oils or argyrol.

INCURABLE STAGE

GENERAL SYMPTOMS

1. Cough.
2. Profuse secretion.
3. Profound anemia.
4. Loss of voice, aphonia.
5. Severe pain.
6. Dysphagia.

TREATMENT

1. Sedatives.
2. Expectorants.
3. Irons, etc.
4. Rest of voice, no whisper.
5. Injections into superior laryngeal nerve.
6. Amputation of epiglottis.

LOCAL APPEARANCE OF LARYNX

1. Swollen arytenoids.
2. Swollen ulcerated epiglottis.
3. Larynx bathed in pus.
4. Caseation tubercles.
5. Breaking down mucous membrane.
6. Ulcerations, larynx.
7. Dyspnea, tubercular laryngitis, laryngeal edema.

TREATMENT

1. Galvanocautery into arytenoid.
2. Amputation epiglottis.
3. Cleansing applications.
4. $AgNO_3$ or lactic acid to area.
5. Galvanocautery.
6. Orthoform or morphin.
7. Tracheotomy.

The prognosis is usually grave. In the report from the tuberculosis wards of Jefferson Hospital, Dr. Wagers found that in over 75 per cent. of his laryngeal cases the patients died. You can cure a tubercular larynx if the lung is cured. We are greatly taxed to find some comfort for the patient in the incurable stage in his last few hours on earth, as he suffers from great pain when swallowing or coughing, and my most successful remedial agents have been the oils; galvanocautery; injections into the superior laryngeal nerve either of 1 per cent. solution of cocain or alcohol 85 per cent., or amputation of the epiglottis. Patients have had so much relief from the injection treatment that they have begged me to repeat it from time to time and that is the surest way of judging a remedy. The reason for this is shown when we review the distribution of the superior laryngeal nerve; this nerve divides beneath the mucous membrane which lines the sinus pyriformis, sending branches to both surfaces of the epiglottis and to the base of the tongue; some branches to the aryteno-epiglottic fold and some down as far as the true cords and to only one muscle, the cricothyroid.

The injection of this nerve is given in the following manner: Find the great cornu of the hyoid bone and the posterior superior angle of the thyroid cartilage, then enter in the center of the line between these prominences, as this is the point where the nerve of sensation, the inner branch of the superior laryngeal nerve, passes through the hyothyroid membrane, between the hyoid and thyroid cartilage. Usually this will relieve pain for ten to fifteen days if the nerve is correctly located. The syringe is introduced horizontally towards the median line; penetrate for about one centimeter and inject either 1 per cent. solution of hydrochlorate of cocain or 20 to 30 drops of 85 per cent. solution alcohol warmed to 45 C. If you are correct in your entrance your patient will feel a pain in the ear of the same side, or blink his eyes. It can be done with any ordinary hypodermic syringe although it is easier if you have a longer barrel and needle. The tonsil needle such as you use for local anesthesia is a very good instrument.

The amputation of the epiglottis when it is the cause of the dysphagia is an easy and painless operation if it is painted with 20 per cent. solution of cocain. I find a biting instrument is better than a wire snare (as some men recommend), as the wire is apt to slip off the epiglottis unless you grasp it first with a tenaculum and then slip the snare over it. I debated for quite a while what I should do with the first patient on whom I did this operation when he ate his first meal and I had tracheotomy sets all ready, but I might as well have saved myself much worry for within an hour afterwards he drank some orangeade and never even coughed. In fact, he enjoyed his meals so much I could hardly restrain him from eating everything. So although he had no epiglottis, he experienced absolutely no trouble in keeping food out of his trachea and was so much relieved of his pain that his last few months were spent in enjoying good food.

Prevention of tuberculosis: Avoid excesses for they predispose to tuberculosis.

It is interesting to note the results of Dr. Laplace's report on recent investigations with rats. The white rat is very susceptible to tuberculosis, while the brown, or ordinary sewer rat, apparently is highly immunized by his environment. It is very difficult to make this brown rat tubercular. However, if you will starve him for a week and make him work a treadmill he will contract tuberculosis readily. The moral from this experiment is very evident.

218 South Twentieth Street.

Establish throughout our crowded cities the sanitary toilet, and on every tenth block let there be a urinal, that we may perform a physiologic act without paying tribute to the saloonkeeper.—*Medical Review of Reviews.*

THE METABOLISM AND SUCCESSFUL TREATMENT OF RHEUMATOID ARTHRITIS*

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In presenting some practical results of investigative work in connection with rheumatoid arthritis, extending over the last four or five years, I want to say that this work is still in the making and far from complete, but from it a definitely useful and practicable method of treatment has been evolved.

Rheumatoid arthritis is a large and difficult subject and until recently but little headway had been made in attacking it. The first real advance in this country must be accredited to the orthopedists, who recognized, some ten or fifteen years ago, the possible relation of a focus of infection to this disease and upon this recognition a very useful line of therapy has been erected, consisting in the removal of the focus, or, where that is not possible, attempts to modify its influence by vaccines.

The profession everywhere recognizes now the importance of these steps, and there are few physicians who do not diligently search in such patients for infections in the tonsils, teeth or elsewhere. Unfortunately, however, after such efforts have been made, it frequently happens that the desired improvement does not follow; and there exists furthermore a not inconsiderable number of cases in which no focus of infection can be found. The combined number of cases of one or both of the above types is large and it is concerning this class of cases and the efforts to help these patients that I wish to speak.

There are to be found physicians, mostly enthusiasts as to the rôle of bacteriology in causing disease at large, who believe that all cases of rheumatoid arthritis are caused by an infection in the surgical sense, but if this be the case, there follows the necessary corollary that the results of such infection can be negatived by dietary treatment along the lines to be later described. A dispassionate view is that many but not all cases of rheumatoid arthritis are caused by an infection in the true surgical sense of the word.

A few words as to the development of the hypothesis on which is based the treatment to be described may be useful here. While studying the metabolism of two individuals who had rheumatoid arthritis and were being exposed frequently to the Roentgen ray, the writer observed a certain degree of subjective benefit coincident with a very great increase in the elimination of nitrogen chiefly in the form of uric acid. The writer had also observed in individuals, the subjects of rheumatoid arthritis, who had undergone a major operation, that following the anesthetization there was a period of subjective relief. It has long been known that agents which "hasten the body metabolism," such as arsenic and thyroid extract, etc., have sometimes a temporary beneficial effect on rheumatoid arthritis, and it seemed to the writer from a correlation of these facts, that the subjective benefits following operation might be referable to institution of the so-called basal metabolism of starvation due to the diminished food, and the opportunity given nature to rid herself of the end products of metabolism. This idea is in harmony with the beneficial effects in this disease of arsenic, Roentgen ray and others which operate in the opposite connection, viz., to "hasten the body metabolism," and, so to speak, "whip the flagging horse." The limit to the efficacy of these agents is obviously the fact that after therapeutic dosage their small stimulation of cellular metabolism is not great enough to care for the "load" on the tissue cells.

If these facts were true it seemed possible that there might be a midway point at which the subject of arthritis could utilize a lowered intake of food with satisfaction to his nutritive needs and at the same time without injury to his joints, as expressed by the arthritis. The correctness of this hypothesis, at least in part, was indicated in a small series of patients, from which there developed further experimentation and a larger experience which form the subject of these remarks.

In the last three or four years the writer has published a number of conclusions,[1] based on this work and as it seems desirable to make this paper as practical as possible it may be well to read these conclusions in brief in order to bring out the salient facts ascertained and proceed to the detail of the management of cases.

CONCLUSIONS ALREADY PUBLISHED

1. Rheumatoid arthritis is apparently a preventable disease.

2. In many instances, where the general health is not undermined by great deformities and sequelæ of long standing the disease can be arrested.

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* Read by invitation before the Luzerne County Medical Society, Nov. 15, 1916.

[1] The Metabolism and Successful Treatment of Chronic Joint Disease; a Preliminary Report, Amer. Jour. Med. Sc., October, 1912, p. 744; and The Metabolism, Prevention, and Successful Treatment of Rheumatoid Arthritis; Second Contribution, *ibid.*, December, 1913, p. 895; January, 1914, p. 111; February, p. 265; March, p. 432; March, 1916, p. 351.

3. There seems to be in each case a limit of toleration for carbohydrates on the one hand and proteins on the other.

4. After arrest of the arthritis following curtailment of these elements the diet can generally be gradually increased until in some cases it differs but little from that of health.

5. Cases with both hypertrophic and atrophic arthritis respond to these measures, and the common etiology of these processes seems probable.

6. The presence of an intercurrent or possibly causative infection is not necessarily a contraindication to treatment, and recovery may take place in spite of it, though such factors should be eliminated if possible. The large group of cases in which a causal source of infection cannot be found or removed lends itself particularly to these measures.

7. Care is necessary to determine the highest level of metabolic equilibrium at which the arthritis will subside, and the patient should be maintained at or near that point.

8. While the general health improves with the subsidence of the arthritis, and though the patients seem to acquire a toleration for a larger dietary, the general principles above described must be rigidly observed or relapse will occur.

9. The disease is apparently not due to faulty elimination through the bowels or kidneys, or to "intestinal putrefaction" so-called.

It will be seen that there exists apparently in many cases of rheumatoid arthritis a level of intake of carbohydrate and protein food above which the individual is ill and below which improvement or entire convalescence may follow. This level varies with the individual case and no set rule can be given for ascertaining it. Furthermore, at the present writing, the exact rôle which the carbohydrates, protein and fat play is not apparent, but in any event the fats are less important in their relation to nutrition and can be dispensed with entirely if necessary.

It seems pretty clear from feeding experiments that the carbohydrates play a very important rôle. Curtailment of this factor has formed one of the bases of treatment and good results have followed therefrom. Further, out of four cases in which the attempt was made, it was possible to induce exacerbations of the disease in three cases, previously rendered free from it, by feeding pure carbohydrate in the form of cane sugar. On withdrawing the carbohydrate convalescence again set in, so that the evidence that carbohydrate plays a causative rôle in this connection is at least strong.

The rôle of protein cannot now be fully stated, but at all events the individual requires for maintenance a certain amount, roughly a gram per kilo of body under normal conditions, which cannot be entirely dispensed with, and it seems pretty clear that quantities in excess of the minimum requirements can be and have been satisfactorily borne in patients who have undergone convalescence and cure. It seems to be unimportant whether this protein be administered as beef, chicken, milk or eggs or as vegetable protein. It should be recalled here that about 50 per cent. of the protein molecule passes to carbohydrate within the body, which may eventually explain the analogy between these two foodstuffs as to their limit of tolerance by the economy. Furthermore, many of the products of bacterial as well as enzymatic cleavage of both carbohydrate and protein are also identical.

Experiments during the past winter in connection with fat seem to indicate that, although it is not possible to replace the curtailed caloric intake entirely by fat, it may be possible to give part of this in the form of fat without injury to the arthritis and with benefit to the nutritive needs. It was at one time hoped that it might be possible to replace the caloric deficit from a low diet entirely by fat and so avoid loss of weight, which cannot well be spared in emaciated cases. This hope has not been fully realized, however, and there seems to be often a distinct limitation from the metabolic standpoint to the amount of fat which can be fed compatibly with subsidence of the arthritis. It is apparently sometimes necessary for the individual to lose weight in order to utilize the injurious products which reach the tissue cells. In brief then, the facts seem to be that it is necessary to reduce the carbohydrates by an important amount, varying with each case; that it is necessary to reduce the proteins considerably, but relatively not so much; and third, that, although the fats cannot be handled with impunity, they may be used with caution to increase the caloric value of the ingested food and meet in some degree the loss of weight.[1]

It is not the purpose of the writer to detail here the various experimental efforts in laboratory studies which have been made, hoping to gain some added light. Suffice it, that they have yielded more negative than positive information, but it is at least clear, from studies of the carbon dioxid tension of the alveolar air and from the hydrogen ion concentration of the urine, that the disease is not an acidosis in the true sense of the word. Furthermore, it is clear from observations on the urea and noncoagulable nitrogen of the blood, both during ill health and convalescence, that there is no

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[1] Since the above was written, experiments have been conducted (Am. Jour. Med. Sci., May, 1917) in which some patients were carried through to convalescence with an actual gain of weight by using fat in quantities sufficient to equal or exceed the caloric deficit.

"backing up" of the nitrogenous blood elements. In conjunction with other findings, these further indicate that difficulty of elimination by either the bowels or kidneys is not a causative factor. Except in cases on the border land of health it is futile to endeavor to increase very greatly the elimination as it cannot keep pace with the ever-present supply, or the immediate amount of, toxic material. Anaphylactic experiments with egg albumin have further yielded no evidence to show that the nitrogenous elements are at fault.

It is entirely conceivable that the rôle played by the food stuffs depends on bacterial activity in the intestinal tract. If so, observations as yet incomplete suggest, subject to later modification, that it is referable to the substrate of food rather than to a specific type of organisms per se. In any event, there is no question that the final evidences of the disease are truly metabolic, using this term in the widest sense of the word. Furthermore, the end results within the body can be influenced by agents which are known to concern intimately the body metabolism so that whatever the origin, whether purely metabolic or bacterial within the intestine, the later steps in the causation of this disease must be regarded as metabolic in nature. It seems likely at present that at least some of the substances causing the damage arise in the cleavage of the carbohydrate molecule, either bacterially within the intestine or physiologically, and that an important phase of the disease concerns the ability or inability of the tissue cells, particularly perhaps in the muscles, to utilize and destroy these mid products.

In undertaking the treatment of a case it is the writer's practice to observe the individual for a period of upwards of a week, during which time an accurate record is kept of the entire food intake in terms of grams and cubic centimeters. This can readily be done by any nurse trained in modern methods, and requires nothing more than a measure and a pair of scales weighing to one gram. Some intelligent patients have conducted this alone. From this record a pretty close idea can be obtained as to what the individual normally ingests and about the number of calories required to keep him in equilibrium. During this probationary period he is urged to live as nearly as possible according to his usual habits, as regards exercise and general activity.

It is very useful to have the ingredients of the probationary diet prepared according to some definite formulary. The most useful in this connection is to be found in a small book entitled "Food Values" by Edwin A. Locke, in which is set forth nearly all of the useful table articles with their caloric value appended.

The estimation of the caloric value of foods may appear difficult to those not accustomed to it, but in point of fact a little practice makes such interpretation relatively easy, and today, the practice of pediatrics and the treatment of typhoid fever, for example, not to mention diabetes, really presuppose such familiarity.

From the record then of the individual's intake of food over a period of from three to seven days, the average daily caloric intake can be fairly closely approximated. Since the symptoms of disease have persisted in general under these conditions, it follows that any method of treatment which involves a curtailment of food must reduce the food intake to a point at least below the average which has been ascertained. Furthermore, it is of prime importance that the nutritive needs of the body be met or kept well in mind and in making reductions as severe as those sometimes entailed here, it is important that no harm be done to the individual. One can be sure of this only if the actual caloric value of the intake ordered is known. It is important, of course, to give as much food as the individual can tolerate without injury to his joint structures, from which it follows, in the author's experience, that these diets have had to undergo several changes, the first, or even the second, being too ample to achieve the results desired. But, as it is impossible to postulate *a priori* what that amount will be, it is well to proceed cautiously in the above manner, especially as some cases of long standing and apparently severe arthritis manifest striking improvement on relatively slight modifications in their diet.

It may be said that a recent case in a young subject requires in general a slight modification as compared with an advanced case of long standing, and if the average normal food intake be found high, it may be assumed with fair probability that the new diet need not be very restricted. On the other hand, if the average food intake be found low, it is obviously necessary to strike an even lower level. For example, in patients living on a caloric intake of 3,500 calories there is a very good chance that a reduction of this amount to, say, 2,500 calories will still leave them ample for all nutritive needs and at the same time relieve them of the surplus of food amounting to 1,000 calories. On the other hand, if the individual be ingesting normally only 1,900 calories, as sometimes occurs in the secondary invalidism of this disease, it is plain that no such reduction can be made. It is then necessary to strike an even lower level of, say, 1,500 or even 1,200 calories and so on. The use of calories in this connection is, of course, simply as a measure of amounts of food and bears no necessary relation to the subject of calorimetry of the body in general.

In drawing up a new dietary the proteins and carbohydrates are the chief factors to be considered and the caloric value decided on must begin with the calories from these sources. Certain other factors are also important, however. There are many articles of diet whose bulk is considerable for the food value contained, which serve several purposes; among others, that of filling the stomach, stimulating peristalsis, and affording the psychic satisfaction of eating when hunger is present. Such foods are apples, tomatoes, spinach, celery, beets, cabbage, turnips, lettuce, etc., which are exceedingly useful to take the edge off the appetite and serve as a basis for the really nutritive but restricted articles which follow in the form of bread, eggs, meat, etc.

As for the carbohydrates and proteids, it is immaterial how they be administered within the given amounts determined on, though a nearly exact estimation is easier if they be simply prepared. For example, there is great difficulty in allowing for the fat in fried articles, and these should therefore be avoided. So, too, cream gravies or dressings are objectionable for similar reasons. Until convalescence is well under way it is best to adhere to the simple staples, such as bread, butter, sugar, milk, roast, broiled or boiled meat and fish, rice, boiled or roasted potatoes, etc. No one diet can be chosen that is suitable to all cases, for the reasons given above, but in illustration the following may be cited as the dietary at one period in the management of a severe case of a young girl of 20 in good nutrition. (Case xv of the series previously reported.)

Breakfast: 1 apple (135 grams), 1 egg (54 grams), toast (15 grams), butter (10 grams), 1 cup weak coffee with teaspoonful sugar, and 2 tablespoonfuls of 20 per cent. cream.

Dinner: Strained tomato soup, spinach (100 grams), or asparagus (100 grams), raw celery, cucumbers, 1 raw tomato, stewed fruit without sugar (63 grams) 2 tablespoonfuls.

Supper: White meat of chicken, or fish, or chop, or beefsteak (100 grams), stewed figs, 2 tablespoonfuls (63 grams), weak tea with 1 tablespoonful 20 per cent. cream and 1 teaspoonful (7 grams) sugar.

Bedtime: 1 glass of milk and 1 tablespoonful of 20 per cent. cream.

This diet yields about 1,100 calories and despite its low value was followed successfully for a long time by the patient. A better balanced type of diet, yielding more food value, is given in the following chart, which, however, is suitable only to relatively mild cases. It must be emphasized again that no one diet will suit every case.

DIET CHART

			Calories
	1 Apple	150 gms.	72
	1 Egg	50 gms.	83
B.	1 Slice bread...........	30 gms.	81
	Butter	10 gms.	80
	Weak coffee and 20 per cent. cream	1 tbspf. 15 c.c.	54
	Sugar	1 tspf. 7 gms.	28
11 a. m.	Olive oil	1 tbspf. 15 c.c.	121
	Vegetable soup strained..	VI 180 c.c.	25
	Lettuce		
L.	Mayonnaise	1 tbspf.	187
	Spinach	50 gms.	28
	Butter	5 gms.	40
	1 Orange	250 gms.	96
4 p. m.	Olive oil	1 tbspf. 15 c.c.	121
	1 Apple	150 gms.	72
	Weak tea and 20 per cent. cream	1 tbspf. 15 c.c.	54
S.	Sugar	7 gms.	28
	Chicken or beef.........	50 gms.	100
	Bread, 1 slice...........	30 gms.	81
	Butter	10 gms.	80
	Lettuce		
	French dressing	1 tbspf. 15 c.c.	148
9 p. m.	Olive oil	1 tbspf. 15 c.c.	121
			1,700

The proportion of cases which respond along these lines cannot be accurately given because so much depends on the cooperation of the individual, the amount of structural harm already done, the severity of the disease itself, etc., but in general it can be said that of some fifty cases in only three or four has the influence of a reduced caloric intake failed to appear. Of the remainder, response was evident in all to a greater or less degree and a gratifying number underwent great improvement or cure. This dietary influence cannot always be pushed to a successful conclusion for a number of reasons. For example, in the presence of emaciation, anemia, advanced heart disease and the like, the already unstable equilibrium may be further upset by a lowered food intake, however slight, and this may then be strongly contraindicated; on the other hand, there is nothing in these measures per se which is injurious, provided they be closely watched, and since the first publication of the writer's experiments the safety with which restriction of diet can be pushed to great length has been well illustrated by many experiences in connection with diabetes. It is, of course, of the highest importance that individuals should be put at modified or complete rest coincidentally with a moderate or severe curtailment of their energy intake, and this cannot be emphasized too strongly. The weight must also constantly be watched.

The first evidence of improvement under these measures is generally seen in the smaller joints, such as the knuckles of the hands, and if these have been the seat of inflammation it may be possible as early as the third day to detect a dimpling or wrinkling of the skin denoting a lower tension of the tissues. This may or may not be accompanied by subjective improvement, and it may be said that pain is among the later features to subside. The small joints yield earlier than the large, for obvious reasons, and it is extremely important to differentiate accurately at all times between the lowered function due to purely inflammatory processes and that due to the secondary results of long-standing arthritis, such as contractured tendons, eroded bony surfaces, structural deformity, and the like.

Patients often need encouragement during the long period required for treatment, since they not unnaturally mistake the secondary results for a continuance of the causative arthritis, although this may in fact be subsiding. The type of case which has given the best results in the writer's experience is the typical example of rheumatoid arthritis with involvement of the hands as well as other joints of the body. It may be said that, in common with practically all other diseases, the more chronic and the more advanced the condition, the more difficult treatment becomes, but there are some well-marked exceptions to this, and one case in particular, which had lasted nineteen years, gave most striking improvement.

The writer has had less experience with the hypertrophic type of arthritis localized to one joint, such as the hip, than with the more diffuse types, but some gratifying results have also been seen here.

It must not be supposed that all cases will respond equally well. Wider experience may develop more types in which no response can be detected, but it is safe to say that in a large number, perhaps a large majority of cases which have yielded to no other measures, definite benefit or cure can be seen. The general nutrition of the individual largely determines the degree to which treatment can be pushed, and in every case the individual and not the arthritis must primarily determine the vigor of treatment. It is of small benefit to improve the arthritis at the expense of the health of the individual as a whole. By this same token, the writer has not infrequently had to terminate treatment in the presence of cardiac disturbance, although it was apparent that the measures had accomplished something and apparently might have accomplished more had it been possible to continue them. The writer cannot too strongly emphasize this point because any severe dietary procedure is a two-edged tool and must be used with the greatest possible caution. Young individuals respond in general better than older ones, though this against has its exceptions. The cooperative temperament of the patient is also a determining factor in treatment and apparently gratifying results may be negatived by a weak personality and lack of perseverance, often due merely to the inroads of chronic disease.

In undertaking treatment along these lines it is important to determine whether arrest of the disease in an advanced case would justify such prolonged sacrifice as must be made to achieve it. It not infrequently happens that structural deformity is so far advanced and the associated neuritis or muscular atrophy has become so chronic that, although the arthritis were to be arrested instanter, there would still remain practically as much disability and pain as before. It is as true of treatment here as in any other condition, that there must be an intelligent selection of those cases which best deserve an effort. In relatively young individuals of good nutrition, in whom no foci of infection exist, especially if the disease be not very far advanced, the most vigorous attempt is more than justified and it is, of course, precisely in this class that the most significant results can be seen.

It is interesting to note that in conjunction with the evidences of arthritis, certain other conditions may present which are expressions of the same toxemia and may markedly improve under this treatment. For example, most cases of rheumatoid arthritis have more or less neuritis, and the writer has seen several striking examples of sciatica thus treated, which have been entirely dissipated. Neuritis seems to be another expression of the underlying factors which cause arthritis itself and the same may be said of certain obstinate types of headache in which no other causative factor can be found.

Again, many individuals who undergo these measures experience distinct *bienaise* and heightened animation as evidence of the relief following removal of the toxemia, and caution must then be urged to prevent their making undue demands on the body strength and weight. This is one of the most difficult questions to meet in treatment and only the most patient and whole-souled cooperation will enable the physician to continue treatment until the patient is out of the woods.

As convalescence proceeds it is often possible to increase the food intake, in some cases very measurably, so that the necessity for reduced activity may grow less or disappear, and the individual be allowed to resume his full activities. Some patients have been able to return to an unrestricted diet and remain at the present writing, three years after treatment, entirely well.

If our hypothesis be correct, exercise should be, and it is found to be, useful in helping to utilize the unused products of normal or pathological metabolism in the muscles or joints, and if it be undertaken when the food intake is sufficiently high to justify it, cautiously at first, it may serve a useful purpose. Massage has much the same function and should be controlled by the general principle that irritation of any kind may only further injure an inflamed part. Only when the arthritis has measurably subsided should it be ordered and then only in an entirely unirritating and painless manner. It should be borne in mind also that, when joints have been long spared by the subject of arthritis, the associated muscles undergo an atrophy of disuse, and even though inflammation and pain should disappear, function cannot return until these muscles are redeveloped. This redevelopment depends largely on the amount of mechanical function left in the joint and the degree to which massage and passive and active motion can be pushed compatibly with the general nutrition of the subject. It should be borne in mind that massage may make such a demand on the subject of it as to render insufficient a caloric intake of food which would otherwise be adequate. The writer has found cod liver oil of great value after response to treatment has been evidenced and the patient has settled down to protracted adherence to a low diet. Under these circumstances when the toxemia has been removed the blood may rise from figures of anemia to those of complete normality.

There are so many points to be considered in connection with a topic which concerns the nutrition of the body, not to mention the pathology of arthritis itself, that a consideration of all of them is impossible in the brief time at disposal, and the writer can hope to do no more now than to emphasize the underlying principle on which treatment is based and indicate the general manner of carrying it out.

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BLOOD PRESSURE FROM THE STANDPOINT OF THE CLINICIAN

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A knowledge of the state of blood pressure in a patient is of undoubted value to the physician. It not only aids in the recognition of certain diseases as, for example, chronic interstitial nephritis, Addison's disease, and various toxemias, but it is also a guide in treatment. It also throws light on the condition of the myocardium, and often in acute and chronic disease, the behavior of the blood pressure indicates a failing circulation long before other signs are obvious.

Blood pressure observations must be made accurately and with due regard for the factors that modify the pressure in order that correct interpretations may be made. Excitement raises blood pressure to a very marked degree. One of the most common experiences is to find the pressure raised above the normal in patients coming to the doctor's office for the first time, and on subsequent visits, to find the pressure normal. The state of the nervous system has a very decided influence. Not uncommonly, patients are observed whose pressure is constantly higher in the consulting room than when observed in the patient's own home. Just a few weeks ago a 10 mm. rise in systolic pressure was seen in a physician who was narrating an encounter he had had with a dangerous lunatic. The unexpected loud noise of the crashing to the floor in an adjoining room of a tray containing dishes caused a 25 mm. rise in systolic pressure in another patient. It is obvious, therefore, that excitement must be avoided and the patient's fears allayed. It is well to inform nervous patients undergoing blood pressure examination for the first time that the arm will be tightly compressed by the air in the rubber cuff and that pulsation will be felt under the cuff but that no harm can be done; in other words, the patient must be assured.

If the pressure on the arm is maintained too long a very disagreeable sensation, sometimes amounting to a sickening pain, is produced; and as pain is capable of causing a rise in blood pressure, this should be avoided. While the pressure determination is in process, the muscles of the arm should be relaxed.

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* Read before the Philadelphia County Medical Society, Jan. 24, 1917. See report of the symposium on blood pressure, Pa. Med. Jour., April, 1917, p. 529.

The blood pressure observations should be repeated on subsequent visits so as to have a number from which to draw deductions. Isolated observations are often difficult to interpret especially in neurotics. The observations should include the systolic, diastolic, and pulse pressures in every case. A study of these components gives valuable information. For instance, a falling systolic pressure and a rising diastolic is usually an indication of increasing peripheral resistance and weakening of the myocardium, a combination that may lead to a circulatory death. Observation of the systolic and diastolic pressures after exercise throws light on the state of the cardiovascular apparatus. Any form of exercise may be used, such as running about the room or up and down steps a given number of times, or ten vigorous bending movements, *i. e.,* bringing the tips of the fingers as near the floor as possible keeping the knees rigid. A rise of 10 to 15 mm. in systolic pressure indicates a good myocardium. A fall in systolic pressure indicates a weak myocardium, weakened as a result of disease in the muscle itself or as a result of faulty enervation. A similar fall in pressure is observed in patients with relaxation of the general musculature, and if one listens over the cardiac apex immediately after the exercise one hears a faint short systolic murmur of brief duration. Such a heart is likely to do badly in infections such as pneumonia. An unchanged systolic with a drop in the diastolic pressure is frequently encountered in persons with an exhausted nervous system. Instability of the nervous system is often characterized by sudden temporary changes in the systolic, or diastolic, or even in both these components. An increase in the systolic pressure and a very great decrease in the diastolic giving a high pulse pressure is characteristic of aortic regurgitation.

Hypertension, by which is meant a persistent elevation of the systolic pressure above 150 mm., has received a great deal of attention. In the great majority of instances, the hypertension is associated with cardiac hypertrophy and chronic interstitial nephritis. Sometimes no evidence of disease of the kidneys is demonstrable even though the hypertension is extreme. Such hypertension, however, is always of grave import. A woman, who for a number of years had a systolic pressure constantly above 200 mm. and in whom no clinical evidence of renal disease could be found, died very suddenly in bed after retiring in her usual state of health. As no necropsy was obtained, the actual cause of death must remain unknown; but it is probable that death resulted from a cerebral hemorrhage. Another patient, a woman, whose only complaint was of headache, had a systolic pressure of 320 mm. This patient was unquestionably in great danger.

In neither of these patients was palpation of the radial pulse of any assistance in the formation of a judgment of the height of the blood pressure. It is impossible in a very large number of patients to estimate even approximately the degree of hypertension by palpating the pulse.

The chief causes of hypertension probably are toxins generated in the body as a result of faulty metabolism induced by excessive food, insufficient exercise, alcohol and tobacco. It is probable that blood pressure may be raised by the retention in the body of the end products of normal metabolism. This may account for the hypertension in certain forms of nephritis. Prolonged excessive physical exertion and excessive mental work and worry are also factors. That a functional disturbance of the adrenal glands is the cause in some instances will probably be clearly demonstrated in the future. Arteriosclerosis is not a cause of hypertension but is a result of the operation of the same factors that caused the high blood pressure. When these causes cease to operate the sclerosis of the vessels remains but the hypertension disappears. Arteriosclerosis with normal blood pressure is very frequently observed.

Hypertension is not a disease but merely a symptom indicative of an abnormality in some function of the body. As it is often present without other symptoms and as its presence is apt to be undetected by palpating the pulse the sphygmomanometer should be used routinely in the study of each patient.

The persistent abnormal elevation of blood pressure is an important symptom and for a long time may be the only indication of disturbances in the body, which disturbances, if unchecked, will lead to irreparable damage and eventually to death. When hypertension is found early, a search may reveal the cause, the removal of which may prevent the death of the patient years later. A study of the dietary must be made and excesses, especially of the proteids, prohibited. The relationship of the quantity of food to physical exercise must be scrutinized, remembering that a food consumption that appears very moderate, may in reality be excessive in the absence of physical exercise. When the food habits of workers in sedentary occupations is studied, it is surprising to find the relatively enormous amount of food, especially proteid, that they consume. It is probable that this is a more prolific cause of cardiovascular-renal disease than is alcohol or tobacco. Therefore, exercise to assist in the proper oxidation of the ingested food becomes of the utmost importance. Thorough elimination of the end products of metabolism and the cessation of overwork and worry are likewise important.

When cases come under observation after the cardiovascular-renal system has undergone marked change there is not only less likelihood of success in treatment, but also considerable danger in reducing the blood pressure. A certain degree of hypertension is necessary in these cases for proper elimination through the kidneys. When the pressure is reduced below 170 mm. indications of a dangerous toxemia, such as loss of appetite, nausea, vomiting, headache and dyspnea, are commonly observed. Excessively high pressure, *i. e.,* over 220 mm., is dangerous and efforts to reduce it must be made. For this purpose drugs are of slight value. Nitroglycerin exerts very little influence in blood pressure reduction even when the dose is sufficiently large to produce headache. Sodium or potassium iodid, though widely used, is likewise valueless for this purpose. Their use in hypertension associated with advanced chronic interstitial nephritis is not without danger. During its administration to some patients the daily quantity of urine diminishes and edema appears. The nitrites exert slight influence on the pressure.

Measures that induce free elimination through the skin and bowels do most good. Three or four watery evacuations from the bowels should be secured. Elimination through the skin is best obtained by one of the various baths such as the cabinet bath, electric light bath or the hot wet pack. Turkish baths may be ordered in suitable cases. The frequency of the sweating and purging will depend on the urgency of the symptoms. When uremia is present these methods are used daily, and sweat baths even twice daily. If few or no symptoms are present once a week is usually sufficient. Of course, general hygienic rules must be obeyed and the quantity of proteids reduced to the minimum. The importance of securing mental and physical rest increases directly with the height of blood pressure; *i. e.,* the higher the pressure, the greater the importance of rest. Venesection is of great temporary benefit and should be employed when cardiac dilatation occurs or when there is danger of rupture of a vessel, or when the first signs of cerebral hemorrhage are noted. Sufficient blood should be withdrawn to effect a decided lowering of blood pressure. A patient was observed for a period of three years, during which time the pressure was 230 mm. and often higher. Several times severe headaches were relieved by the abstraction of 20 ounces of blood, and the pressure was reduced 60 to 80 mm. Unfortunately, the pressure rises again within 24 to 36 hours. For this reason it cannot be used routinely. Its value in emergencies, however, must not be forgotten.

Hypotension is discussed much less frequently than hypertension, probably for the reason that in the vast majority of instances it is not significant of such grave disease. A systolic pressure of 110 mm. is not uncommon in apparently healthy adults. A very low pressure is not only compatible with life but permits of a certain amount of activity. A few years ago a man afflicted with pernicious anemia walked into the office complaining of weakness and shortness of breath on exertion. A walk of a few blocks, however, did not produce objective dyspnea. The systolic pressure was 50 mm. and the diastolic pressure was 25 mm. The patient was put to bed and treated for the anemia. No treatment was directed specifically to the hypotension, which was replaced by normal values as general improvement was secured.

Hypotension is the constant feature in certain types of neurasthenia, the characteristics of which are mental depression, loss of ambition, loss of strength with usually a preservation of the body weight. The hands and feet are cold and moist even on warm days, and the pendant hands are bluish. Slight exertion, either mental or physical, causes fatigue. Sometimes there is marked indicanuria, but in about as many others indican is absent. These patients are easily discouraged and after making a few half-hearted attempts at treatment cease their efforts and talk indefinitely of suicide, which they seldom attempt. The hypotension is not the cause of the symptoms, but is itself only a symptom. Possibly in the future this symptom-complex may be proved the sequence of a disturbance of function of some of the ductless glands, in which event, much good may eventuate from the use of the proper glandular extract. At the present writing, our chief dependence is upon general hygienic measures, hydrotherapy and massage. As the general state of the patient improves the blood pressure returns to normal.

In 1904 a series of observations was made in the Philadelphia General Hospital upon the systolic blood pressure in cases of dementia praecox and in practically all hypotension was found. In all the hypotension cases indicanuria was present.

Reasoning from our imperfect knowledge of the function of the adrenals, one should expect to find marked hypotension in instances of Addison's disease. Thus far, I have had the opportunity of studying but two such patients. The first, seen in the Philadelphia General Hospital in 1903, had pulmonary tuberculosis with involvement of the adrenal glands. His systolic pressure was between 60 mm. and 70 mm. He died in a few weeks. The second patient was seen for the first time in 1911 and is still living. His systolic pressure was 85 mm. He was able to walk about but was very weak and occasionally had syncopal attacks. I believe that a study of a series of such cases would show extreme hypotension to be a constant and prominent feature of the disease, so much so that in the presence of normal or but slightly subnormal pressure a diagnosis of Addison's disease properly could be excluded.

In conclusion I may summarize by stating that a knowledge of the blood pressure is an aid in diagnosis, especially in the cardiovascular-renal diseases. An excellent idea of the functional capacity of the myocardium may be obtained and in acute and chronic disease evidence of weakening of the heart thus may be obtained before other signs of circulatory weakness is evident. The blood pressure is a guide in the treatment of certain diseases, notably chronic renal insufficiency as found in chronic interstitial nephritis. The diastolic pressure should be recorded as well as the systolic pressure as the latter alone is insufficient to reveal all that is to be ascertained by a study of the blood pressure.

319 South Eighteenth Street.

CHILDREN'S PLAY—A PATRIOTIC CALL

"Public provision for recreation is not a luxury to be cut off, but a necessity to be conserved." Miss Julia C. Lathrop, Chief of the Children's Bureau of the U. S. Department of Labor, in discussing the report on Facilities for Children's Play in the District of Columbia just issued by the bureau, said today:

"An English authority has lately pointed out the demoralization to boys and girls caused by the breaking down of clubs and the withdrawal to the army of recreation leaders, and he has traced much of the increase in juvenile delinquency in England to the chaos in recreation activities which has prevailed since the war.

"This is a good time to remind ourselves that the continuance and development of all types of innocent and healthful recreation in every community offer a call to patriotic service for many who cannot go to the front. The strain and anxiety which are certain to grow in this country for an indefinite period ahead of us need to be counterbalanced by greater community effort to provide opportunity for wholesome play."

THE DOCTOR AND THE REFEREE*

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The time has now gone by when thinking men question the mutual benefits derived from workmen's compensation laws. Germany was the pioneer in recognizing their value, and enacted such a law in 1884. Thirteen years later England wrote a similar statute into its jurisprudence. Since that time the theory has been gradually spreading throughout the United States. The law is everywhere accepted as meeting the question of how to deal with the employer and the employee in case the employee is injured while performing the services of his master. In a word the compensation laws are the embodiment of a new legal theory, an advanced theory which supplants the outgrown doctrines of a past industrial condition, and which substitutes in their places a new method of accident insurance in which industry pays the premium as an incident to the cost of production. The laws have met with opposition only to overcome it; the wisdom of the framers of the constitution has again been manifested in the fact that the terms of that document are broad enough to include the provisions of this humane legislation. The Pennsylvania Act has weathered the storm of constitutional objection, and now stands secure on the statute books. After a year of operation, I appear before this gathering of men of the medical profession to point out, if I may, the interesting features of the act relating to physicians, and to suggest, if you will indulge me, how better to accomplish the aims and purposes of the act through the medium of your cooperation.

The Workmen's Compensation Act of Pennsylvania took effect Jan. 1, 1916. It contains several sections which are of direct concern to the medical profession. The first and most important of these is Section 306, Paragraph *c*.

> During the first fourteen days after disability begins the employer shall furnish reasonable surgical, medical, and hospital services, medicines and supplies, as and when needed, unless the employee refuses to allow them to be furnished by the employer. The cost of such services, medicines and supplies shall not exceed twenty-five dollars, unless a major surgical operation shall be necessary; in which case the cost shall not exceed seventy-five dollars. If the employer shall, upon application made to him, refuse to furnish such services, medicines and supplies, the employee may procure the same, and shall receive from the

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* Read before the Schuylkill County Medical Society, Feb. 6, 1917.

> employer the reasonable cost thereof within the above limitations. If the employee shall refuse reasonable surgical, medical and hospital services, medicines and supplies, tendered to him by his employer, he shall forfeit all right to compensation for any injury or any increase in his incapacity shown to have resulted from such refusal.

The outstanding features of this section are three: they are that the costs of medical attention immediately following the disability are to be borne by the employer; that this burden continues for a period limited to fourteen days, and that the maximum cost is to be $25, except in cases where a major surgical operation is necessary, then it shall be $75.

All of these provisions are of importance to the physician. The advantage to the medical profession of placing the burden on the employer is manifest; this puts the obligation to pay on him who is competent and able to pay; and, since this liability is insured against, no bad debts or uncollected assets appear on physicians' books for treatment for the first fourteen days at least. But this liability is not placed on the employer simply for the benefit of the physician. Treatment for the injury is just as much a matter for compensation as are the effects of the injury, and the employer should sustain the burden. The further wisdom of this provision appears in the fact that the cost to the employer is lessened by as much as the time until the employee can return to work is lessened, and accordingly, it is to the best interest of the employer, pecuniary if not philanthropic, to furnish the best medical attention. Whatever may be alleged against the fourteen-day period, it must be admitted that it is a sure protection to the employer and the public against the malingerer. If the employee knows that his continued disability after fourteen days will be an expense on him, he has an incentive to recovery more potent than any drug and more productive of results than the most advanced faith cure.

The provisions of the Act limiting the cost of medical services to $25, except in case a major surgical operation is performed, is perhaps open to more objection than any other among the medical profession. It is significant, however, that the maximum herein fixed relates solely to the cost which the employer must pay. There is nothing in the act which deprives the physician of the privilege of charging the employee any amount in excess of that maximum which is reasonable for the services rendered. This fact has been pointed out by the chairman of the Workmen's Compensation Board. Nevertheless, there may be considerable merit in the demand of the physicians, that the Act be amended to provide for medical services for thirty days following disability, and that $200 be fixed as the maximum. The existing compensation laws in this country vary widely in this particular. In the East the time limit is from two to three weeks, with a maximum cost ranging from $25 to $50, or a reasonable amount subject to approval by the compensation board. In New Jersey, the maximum was reduced from $100 to $50. In the West the time limit varies from three weeks to ninety days, and the maximum cost, from a reasonable cost to $250. In Kansas medical services are paid only in case of death, while in Washington no provision is made for them.

A case which has come to my attention illustrates the danger incident to long periods of payment and large maximum costs. An employee of the city of Milwaukee suffered an injury to the large toe of his right foot; he summoned a physician and a nurse; twice daily for a period of sixty days, the injured member was treated and dressed, and once daily thereafter for a period of thirty days the patient was faithfully visited. Being pronounced cured, the physician presented his account for $232, while the nurse added hers for $32. The patient had made one mistake. He had failed to notify his employer that he had met with an accident, and that he had engaged such a careful physician. Due to this neglect the good doctor's account was reduced from $232 to $32, and the learned judge gave vent to these sentiments, which since they came from Wisconsin, cast no aspersion on Pennsylvania. He said:

> Formerly there was a somewhat popular notion, and by no means not without good ground therefor, that misfortunes of injured employees were often exaggerated and made unnecessarily burdensome to their employers, by such employees, their lawyers and doctors combining to that end, and generally to the great detriment of employees and employers, and the public as well. It may well be that such instances were exceptional rather than common though there was enough of basis for such popular idea to regrettably cast discredit on the learned professions. To rescue such professions from such discredit and remove opportunity for selfishly exploiting the misfortunes of employees at the expense of their employers and the public, careful provision was made to protect claimants from court costs and attorney charges and employers from false claims and fraudulent or needless prolongation of disability, while recognizing that the expenses incidental to surgical and medical attention to an injured person are a necessary part of his reparable loss.

In view of these sentiments, everyone is agreed that care must be taken to prevent abuses from growing up through reckless and ill considered amendments to the law. What I have set forth, however, has been narratory rather than discursive, and I am not to be considered as holding a brief either for or against the law in this particular. So long as the Compensation Act retains its present form, it must be enforced as it stands, and it becomes important to the physician to inquire as to what his duties are under Section 306, Paragraph *c*. It is of prime importance that the physician know whether the case is a compensation case. To determine the question, it is necessary to know whether the injured employee is within the terms of the Act, and whether the injuries received are provided for. The persons excluded from the benefits of the Act are readily discernible; they are of three classes: casual employees, and those engaged in domestic service and in agriculture.

The only difficult question is whether the injury is within the terms of the statute. The Act provides for compensation for "personal injury to, or for the death of an employee, by an accident, in the course of his employment." One cannot do more than indicate broadly and in general terms, what this comprises, and inasmuch as no cases have as yet come before the Pennsylvania Supreme Court, the decisions of other jurisdictions with similar statutes must be looked to in order to find out how they have defined accident and injury. The Act itself defines "injury" to be "only violence to the physical structure of the body, and such disease or infection as naturally results therefrom." But the Act does not define "accident," and in order that the injury may be compensable, it must happen by an accident. Probably the most concise definition of "accident," and in many respects a very useful one, is to be found in an English case decided under a similar statute. Lord MacNaghten defines "accident" as "an unlooked for mishap, or an untoward event which is not expected or designed." Several years later this definition was explained by Viscount Haldane, in a subsequent case in the House of Lords, as meaning "not expected or designed by the sufferer." And in that case, an assault by a third person on the employee was held to be an accident. In many cases definitions are of no avail, and the particular facts must be examined. The adjudicated cases have allowed compensation for such things as sun stroke, hernia, frost bite, lightning stroke, suicide, typhoid fever, pneumonia, and a host of other diseases.

In order for this to happen, however, the disease must result from an injury received by an accident, or the injury must be the absolute cause of the disease. Nor is this all, for, in addition, the injury must have been received in the course of employment of the employee, or on the premises of the employer, provided the employee was required to be there at the time of the accident. As the law now stands, there is no provision for occupational diseases, nor for injuries received without the confines of the commonwealth. Once the physician has concluded that the case is a compensation case, if he intends to claim from the employer, in order to avoid misunderstanding he should see that the employer is notified in writing immediately of the accident. It is the privilege of the employer to select any physician he chooses, and naturally the one he selects is the one entitled to the sum fixed in the Act as payable by the employer. At all times the employee may select his own physician, and the cost is on the employee. If the physician is commissioned by the employer, under the decisions of the Workmen's Compensation Board in this state, it becomes the positive duty of the physician to look up and care for all injured employees, and the mere fact that the employee fails to visit the physician and instead consults another is not a refusal to accept the employer's physician, and does not defeat the employee's claim for compensation.

There is another important fact to be noted: the Act provides for payment to the physician by the employer for fourteen days after disability begins. There may be no disability after the injury, and indeed is none unless the employee is unable to work, and disability may begin long after the injury. It should be borne in mind that the period covered by the law is the fourteen days after disability begins and not after injury. It has been decided that it is obligatory for the employee to accept reasonable medical treatment, but it it not unreasonable for him to refuse to undergo a serious operation involving the risk of life. It is unreasonable to refuse to undergo a minor operation or to insist that it be performed by his own physician, just as it is to refuse treatment at the hospital designated by the employer. This unreasonable conduct acts as a forfeiture of the right to compensation. There are two more sections of the Act referring specifically to physicians: Sections 314 and 417. It is unnecessary to cite these at length; suffice it to say that they provide that the employee, if so requested, must present himself for examination, any time after an injury, to a physician selected and paid by the employer. And in case the employee refuses to do so, the Workmen's Compensation Board may select a physician to conduct the examination; this physician to be paid by the employer. The employee's continued refusal bars his right to compensation. The last section empowers the referee, with the consent of the Board, to appoint a physician to examine the employee and to report to him. In such cases the Board fixes the compensation of the physician, and this is taxed as a part of the costs of the proceeding.

Having brought these sections of the Act to your attention I have not exhausted the subject of the doctor's relation to the Compensation Act by any means, and I have scarcely shown how he comes into relation with the referee. I want now to say a word concerning the doctor's privileges and larger duties under the Act; duties and privileges which he shares perhaps with his fellow man, but which, due to his unique position in the community, bring him into more intimate contact with the operation and procedure of this particular law. I want to say a word more specifically about the doctor and the referee.

It is no exaggeration to say that doctors have been witnesses in 75 per cent., if not more, of the cases which have come before me. That statement is highly significant; it means practically that 75 per cent. of all compensation cases decided, depend on the testimony of the physician. He is well fitted for his task, whether he appears for the claimant or the defendant. The doctor in many homes is "guide, philosopher and friend;" he comes into intimate relationship with the injured employee, and he comes in such a way as to inspire confidence and respect. By temperament, by learning, and by practice, he is best fitted to know what actually happened, and he is the ideal witness. The doctor is summoned immediately after the injury; he it is who first hears the story and, in case he finds the patient *in extremis* and there has been no eye witness of the accident, the doctor's testimony becomes the only available evidence respecting the event. And even in the cases where there have been witnesses, the doctor is always the expert witness, he must testify as to the extent of the disability, in order that the amount of compensation may be determined.

In cases where it is alleged that disease has followed the injury and is therefore compensable, the physician's evidence is indispensable; without it no just result is possible. In view of these circumstances, it is patent to all that the doctor's story is of the utmost evidentiary value. This value is greatly enhanced by the wise provision in the Act which dispenses with all technical rules of evidence in hearings before the referee. The doctor is free to tell his story unhampered and unannoyed, the hearing does not degenerate into a legal combat with the expert witness on the one side questioning the veracity, the skill and the knowledge of the expert witness on the other; the proceeding is dignified, sensible and largely informal. The important fact to the referee in proceedings under the Act is this part the physicians take, and it becomes necessary to see how both referee and doctor are to achieve the best results. It is in the hearing of the cause, or in the investigation which the referee may institute, that the doctor and the referee come into contact. There are certain things the doctor must keep before him to render his evidence as valuable as it is capable of being. Once satisfied that the case is likely to be a compensation case, satisfied that the employee was injured in the course of his employment, by an accident, and it might be said that where there is the slightest doubt in the mind of the physician he should assume that the case is within the law, it becomes the primary duty of the physician to make inquiry and to obtain a full and complete history of the case. This history should be reduced to writing and supplemented from time to time with further important observations during the whole duration of the treatment. The writing is essential, because it may be months before the case finally comes up and the doctor is called on to give his testimony. If this be done (and the slight inconvenience when contrasted with the resulting benefits is negligible) the doctor's evidence will become incalculable in importance and its accuracy will make it controlling to the highest degree. The annoying occurrence of physicians coming to the hearing only to confess that they know little or nothing of the case will be eradicated, and employer, employee and referee will be benefited beyond measure.

In compensation cases, the doctor's testimony far outweighs in value that of any other witness, and if in every case of death and disability, there would be a concise history of the case kept by the doctor, there would be in existence evidence the value of which cannot be overestimated. Of course, this is a duty the doctor owes the public. There is nothing in the Act which compels a physician to prepare himself to testify, although there is that which compels him, the same as any other person, to testify. There is a section in the Act which authorizes the referee to subpoena anyone as a witness, and there is a section providing for payment of witness fees. In carrying out the provisions of the Compensation Law it has been the policy of the referee to strive to minimize the costs of proceedings wherever possible; to make the hearing before him an ideal court of resort where rich and poor alike may come, undeterred by the fear that the costs will be burdensome.

From what has been said, it may be seen that there are two sides of the Workmen's Compensation Act from the viewpoint of the doctor. There is the side which deals directly with the physician, which touches the physician in his profession and makes him a party to the enforcement of the law.

Under the provisions of the Act the doctor's duties, obligations and privileges are explicitly set forth.

Any quarrel physicians, as individuals or as a body, may have with these provisions must be carried to the legislature, and there is no doubt that the united sentiment of intelligent bodies such as this, looking to correction of existing faults, cannot fail to gain any amendment, at once both beneficial to the doctor and to the community in general. No one, I take it, claims perfection for the Act in its present condition, and nothing but a thorough trial will serve to lay bare its defects. Once this is done, the sound and impartial judgment of the medical societies throughout the state will indicate to the legislature such changes as are necessary and expedient.

In addition to this side of the law, there is the side in which the doctor and the referee are brought into intimate relationship. Here it is that the true is sifted from the false with a view of rendering justice to all. And it is just here that no small share of the doctor's capability for doing good lies. In this field, the referee may plead for cooperation. Satisfactory results will attend the enforcement of this legislation only if the doctor will come prepared to testify, fortified with a complete history of the case; then he fulfills his duty, and renders the way to justice easy. Through the medium of the doctor's testimony, in a vast majority of compensation cases one's conception of the figure of Justice will be altered. The doctor will remove the blindfold from her eyes and cast into the scale the measure which will inevitably make it find its just balance.

The possibilities for the doctor are manifold, his opportunity for service is unlimited. It is an opportunity for service which I feel sure he will not neglect; service to the public, to the employer and to the employee, and with this, an opportunity for cooperation with the referee. The doctor and the referee working hand in hand toward the goal of justice can vindicate the aims and purposes of this humane legislation, and earn for it, in time, the sanction and acclaim of all men.

THE RELATION OF THE PHYSICIAN TO SOME OF THE PROBLEMS OF MODERN INDUSTRY *

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I am most deeply appreciative of the honor which you have conferred on me in inviting me to address you on this subject, and it will be my effort to show that some of the important problems of modern industry need the services of the industrial physician for diagnosis and for that treatment which will be followed by a cure.

The passing of time has witnessed a marvelous change in our industrial structure; the city teeming with life and with industry has replaced the village with its comparatively few inhabitants and small factories, where, in the past, the owner and his few employees worked side by side. Steam and electricity have replaced the water wheel as motive power, and today modern machinery is driven at high speeds that were unthought and undreamed of scarcely a few years ago.

The occurrence of the cataclysm in Europe has but accentuated this change. When war came, almost overnight, America found itself shut off from obtaining the countless millions of dollars worth of finished products and raw materials that in the past it had purchased in Europe. Cotton, woolen and silk manufacturers clamored in insistent tones for dyestuffs, the makers of explosives for anilin and its salts, for picric acid, toluene and the nitrating acids; the agricultural interests for potash; the paint manufacturers for paranitranilin; the soap manufacturers for terpineol and other synthetic perfumes; and so I might go on indefinitely. To meet all these varying demands American brains and American capital produced, with Aladdin-

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* Read before the Lehigh Valley Medical Society, Palmerton, Feb. 1, 1917.

like swiftness, vast increases in the size and plant equipment of factories that were already established, and, like mushrooms, new factories were created and intensified. Many problems which in the past had not attracted the attention which they deserved became manifest. New substances the toxicity of which was perhaps unknown, perhaps not thoroughly understood were now produced for the first time in our country on a commercial scale. Labor, despite the lure of high wages and bonuses, became scarce, and the lame and the halt became welcome additions to the working force in many plants. And this labor, because of its inexperience, and the fact that it was not always of the highest mental and physical grade, and that much of it was "floating" (in the plant one day and gone to look for another job the next), added an additional problem which seriously threatened continuity of production in many factories.

The great increase in the size of factories has, by this size alone, created another problem. In times gone by when employer and employee worked side by side, each knew the other often by the first name, and there was the personal touch, that mutual interest in each other's welfare. With the vast size of our modern industrial combinations that, unfortunately, has been lost, and the employee knows only that an intangible something known as "stockholders" has replaced the employer and the only boss with whom he comes in contact is a foreman or subforeman, and that man or woman, to quote my good friend Dean Marquis of the Ford Company, "is sometimes a nonconductor as far as improving human relations is concerned." Some of these foremen in their anxiety to make a showing to their superiors of increased manufactured products and decreased manufacturing costs, lose sight of the fact that the human machine must have its period of exertion balanced by a period of rest or it will become either sick or injured, and forget that the support of the scrap pile of broken human machines, byproducts of modern industry, falls as a heavy burden, not on the individual industry, but on the commonwealth at large.

These changed industrial conditions have demanded at the hands of the legislators new legislation to meet them. Progressive manufacturers, tired of the freedom with which juries in personal injury litigations dispensed other people's moneys; organized and unorganized labor, finding that but few personal injuries were paid for because of the three common law defenses of contributory negligence, assumption of risk, and negligence of a fellow servant; and the inhabitants of the state at large, on whom the burden of a proportion of industrial accidents has fallen, all were factors of influence in the passage of what are termed "The Compensation Laws."

At a recent international congress on hygiene there was a sign which made a deep impression. It read:

Inspected ....Hogs
Protected ....Forests
Neglected ....Children

This sign was incomplete, for to it there should have been added: Tolerated....Human suffering and loss of life through accidents, occurring on our highways, in the operation of our railroads both steam and electric, in industry, and by trespassing on the right of way of railroads.

It will be my effort to impress on you that this toleration must be replaced by conservation, that this needless sacrifice of health and in many cases even of life itself must be stopped. The paramount importance of human conservation is indisputable and if one would emphasize it, one has only to remember that the deaths due to preventable accidents and diseases represent a yearly economic loss to the community at large (if human sorrow ever can be expressed in the sordid terms of dollars and cents) which is greater than one billion, five hundred million dollars. Can we wonder that we are called a prodigal and a spendthrift nation?

It has been truly said that our factories and our transportation lines have run red with the blood of innocent victims. The railroad train which carries our goods and our persons is a modern juggernaut which has often left suffering and death in its path. The trolley car, which brings the workman from his home in the suburbs to his place of employment in the city almost hourly runs down the child at play in the streets. The auto-ambulance, speeding on its errand of mercy, has laid low more than one citizen, who, in his haste, had forgotten to stop, look and listen before crossing the highway. The printing press in spreading knowledge has often mangled its pressman. The shop where our clothing is made takes its toll of the garment worker. The farmer in his fields, toiling early and late to produce our food, works with machinery more dangerous than factory machinery and with less attention paid to devices to prevent accidents. Even the factory, where the casket is made which is our final resting place from this life of toil, takes its toll from the worker and plays its part in the appalling sum total of injuries.

The statistics of accidents on our railroads simply emphasize that the term "modern juggernaut" is not a misnomer, for the average daily toll, based on the reports of the Interstate Commerce Commission is twenty-seven persons killed and two hundred and thirty-five others injured every day. Some of these are trespassers, who, contrary to the general opinion, are not "hoboes" or "yeggmen"; instead, they are wage earners of the neighborhood where the accident occurs, and it has been estimated that more than four-fifths of them are under the age of 18 years.

From the important standpoint of sanitation, there is a sin of omission which seems common to all railroads, the pollution of their right of way, and one can conceive of our commonwealth in the throes of a serious epidemic due to the travels of a "Typhoid Mary."

Several years ago I had occasion to make an analysis of the accident problem of the railroads, and at that time found there were a good many of the larger railroad systems whose methods of physical examinations were not of the best; in fact, three of them made absolutely no tests for color blindness.

"Safety appliances require safe men to operate them," is an axiom too often disregarded by the management of American railroads. The most modern form of block signal system is of no possible protection to any train at night when a color-blind engineer is at the throttle, or at any time, if the engineer is lifeless in his cab from some disease, the presence of which would have been determined by a thorough physical examination.

The accidents of industry make a gruesome group of statistics and the problem is so serious that means for its solution must be found. Pennsylvania is the greatest industrial commonwealth in the world, but the cancer of industrial accidents is gnawing at its very vitals.

Let us consider briefly the statistics of industrial accidents within our commonwealth.

In the year 1914 there were reported to the state 38,126 accidents, of which 379 ended fatally. Let us analyze more closely the 1915 report:

Total number of accidents	61,540
Fatal accidents	1,204
Serious accidents	7,274
Days lost	:820.743
Wages lost	$1,997,024.73
Number of dependents	75,444

Certain groups of occupations are very hazardous, for we find in the "metal products" there were 25,094 accidents, of which 212 were fatal; in the public service, such as railroads, etc., there were 16,919 accidents, of which 51 were fatal, and in the mines and quarries there were 13,955 accidents, of which 749 were fatal.

The accident toll for 1916, by months, is as follows:

Month.	Killed.	Killed and Injured.	Daily Average.
January	129	13.465	518
February	222	24.475	979
March	239	26.971	999
April	169	18.010	720
May	195	18.379	735
June	182	19,939	767
July	200	21,028	841
August	246	23.817	882
September	245	22.194	883
October	287	21,565	829
November	220	20.378	784
December	253	21,267	850
Totals, 1916	2,587	251 488	827
Monthly average	215	20,957	

In January of this year there were 20,968 disability accidents, of which 243 were fatal.

It would seem to be an axiom that to attract attention a tragedy must be dramatic. It seems but yesterday that the civilized world stood aghast when the "Titanic," with her name of ill omen, crashed into an iceberg and some 1,500 souls perished amidst the ice floes. Countless columns of every newspaper were devoted to every phase of the horror and an ever-generous public subscribed more than $2,000,000 for the relief of those made dependent by the catastrophe. Today the newspapers teem with the annals of that crimson horror that stains the fair fields of France, but the vastly greater number of persons who are either maimed or killed by industry every month passes practically unnoticed by both press and public.

Let us pause — and think — if these 251,488 accidents, of which 2,587 were fatal, all occurred in one town at the same moment, the world would ring with the news and there would be a demand from all over this country that such slaughter must be stopped, but occurring as they do, one at a time or in small groups, they have not excited the comment that their importance demands, and press and public are mute in ignorance.

War and industry each makes an appalling total of casualties which should cry out to Heaven in clarion tones for international peace and industrial safety; each takes the very flower of the nation, for the majority of injured are between the ages of 20 and 40 years; in other words, the period of greatest productive power, both mental and physical.

CAUSES OF INDUSTRIAL ACCIDENTS

(1) Unguarded dangerous machinery. (2) Ignorance of employees as to dangerous conditions. (3) Doing work unsafely. (4) Recklessness and taking chances. (5) Speeding up. (6) Fatigue.

HOW TO PREVENT ACCIDENTS

We are today in an era of legislation, both state and national, but it must not be forgotten that it is no more possible to prevent all accidents by mere law than it is to control the tides of the sea by that same process, and we all remember the result of that experiment.

Laws and governmental inspections can and do make work-places safer, but what is really needed is not more laws to clutter up the overfilled statute books, but an awakening of public conscience, a development of human responsibility and a realization by all that the answer is most emphatically "yes" to that query that has run down the ages, "Am I my brother's keeper?"

All dangerous machines, all gearing, all belting that comes close to the floor, should be guarded, and these guards will in themselves prevent 25 per cent. of the accidents. For a machine to be safe, however, it must be operated by a safety man. And safety men, men who know the importance of doing their work safely and who are as thoughtful of the safety of others as they are of their own safety, are those who have been so educated that they have acquired the "safety habit," which by the way is the only habit which never injured anyone.

The prevention spirit is just as important as the safety device. The unused safety device is of no more value than the good intentions which are said to pave the lower regions. An ounce of prevention in using the guard is far better than many pounds of antiseptic dressing or other cure for lacerated flesh.

Guards are essential, but more so is education. The day is happily past in many plants where a man is simply hired at the gate and put to work; instead, he is put in charge of an experienced man who instructs him how to do his work safely and who also warns him of any dangers that may exist, and he stays with the man until he is thoroughly trained to do his work safely.

Each plant should have its safety organization, consisting of a safety inspector, a workmen's safety committee in each shop, a foremen's safety committee and a general safety committee who should see that proper mechanical safeguards are installed, investigate all accidents and help in the educational campaign.

All employees should be encouraged to make suggestions for improving safety and sanitation. Cooperation and harmony are essential and all should work together, for is not the safety of one the safety of all?

Physical examination of applicants for employment and of old employees at a yearly interval should be an essential feature of the work of the industrial physician. It insures to the employee the correction of physical defects and that his coworkers are healthy. It insures to the manufacturer a knowledge as to the physical condition of his most important raw material, his human labor. And why, when an inventory is taken once a year of all other material, should not this most valuable material be also included?

In the hands of the experienced industrial physician this physical examination really becomes physical classification, the fitting of the worker into the proper niche where his physical qualifications show that he or she belongs.

Organized labor is opposed to physical examination, I believe, because its real benefits have never been explained, and they seem to think that all who are not physically perfect are rejected. I know that a material percentage of those who apply for positions are not physically perfect, but the effort is made to correct their impairments. Those with hernia are either operated on and a radical cure obtained or fitted with proper trusses; errors of refraction are corrected with suitable lenses; the epileptic is not allowed to run a crane or locomotive, but is given work where his ailment will not result in a tragedy to himself or to a fellow employee, etc.

Good health is the principal capital of the workman, and any impairment may be the forerunner of a tragedy, the burden of which falls on all who are dependent on the unfortunate breadwinner for their support.

Health insurance is the shibboleth of the hour, cried aloud as the panacea for all physical ills. Instead I believe it would be far better to devote to furthering the science of preventive medicine the millions of dollars that it would cost this commonwealth. Make the effort to keep the citizens well and healthy, prevent typhoid fever, tuberculosis and vocational disease rather than bestow a meager compensation on those who fall by the industrial wayside.

It is unfortunate that we have no reliable statistics of the incidence of occupational diseases, and in many of these diseases their early symptomatology is either obscure or indefinite. All employees engaged in the dangerous trades should be under the observation of a physician, and those who present the evidences of undue susceptibility should be urged to assume other vocations.

Dust and fume are the curses of our modern industrial life and all are harmful, and care should be taken to collect them at their point of origin and so prevent their contact with the worker.

The solution of many of the vexatious problems of modern industry is found by the installation of the competent physician as the head of what has been appropriately termed "The Human Relations Department." He should be the all important connecting link between employer and employee, bringing humanity into all business, and be the guide, philosopher and friend of employer, of general superintendent, of foremen, and of all employees.

The industrial doctor must, if he is to be successful, be a person of rare tact, of much humanity, with wide knowledge and broad experience; he must also be a surgeon, an internist, a diagnostician, an ophthalmologist, a sanitary engineer, and combine with it all the kindly ways of good fellowship but avoid the pitfalls of that familiarity which breeds contempt.

The medical schools would seem to have failed to grasp the need for such men and have not adapted their curricula to meet the new conditions. I have looked in their announcements in vain for evidence of real training in industrial medicine, and more time would seem to be devoted, in most schools, to the symptomatology, diagnosis and treatment of bubonic plague and yellow fever than to that of lead or brass poisoning. No mention at all is made in the medical course in many schools of poisoning due to the nitro and amido compounds, and so perhaps that intern is to be excused for his ignorance when he called his chief up on the telephone and said he had the interesting case of a man who had fallen in a blue dye vat. And his knowledge of yellow fever and other rare diseases was evidently greater than that of anilin poisoning and its dominant symptom.

The industrial physician has entered into modern industry and he will remain as a leaven for better human relations, the past is behind us and we may face the future with confidence, for has not the poet truly said:

While we know that the problems that vex us now
Are sore to our erring view,
Yet we have gained the sight
And gained the might
Which our grandsires never knew.
We have passed from the time
When might was right,
To the time when right reveals
Some part of her face divinely fair
To the veriest clod who feels.
Through the long slow eons
We have upward crept
As ever our God hath willed
And here has the right been crowned our King,
Or there has the wrong been stilled.
There is much to do, much to win,
But the ages have taught their lore,
And we clearer see, what the right must be
Than ever man saw before.

MATERNITY INSURANCE*

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The socialistic principle of equal division of the profits and losses among those especially concerned or affected has spread like a plague throughout Europe, as manifested by the enactment of legislation protecting the wage earner from losses caused by sickness or invalidity. This country now faces the same problem of insuring and assuring the productive element of the public against adverses in time of lowered vital state. Within the next decade three fourths of the practice of medicine will probably be under contract.

This subject cannot in any way be looked on lightly by you as obstetricians, since the woman of today claiming equal rights in the commercial field has, therefore, the privilege of demanding protection during the lying-in period which must certainly be classed as a cause for interruption of her right to contribute toward the family support.

The progress of civilization, with all its haste and time-saving inventions, has taken the woman from her home, where weaving and spinning were part of her domestic cares, to the factory and the crowded sweat-shop where conditions are certainly not ideal for the development of physical strength and vigor so essential for motherhood. The increased cost of living has caused a tremendous exodus of house-keepers from the home to the shop, store, office or factory where gainful employment may assist the chief wage earner in the effort to keep up with the times of "modern show." The number of married women in the field of the employed has increased so rapidly in the last ten years as to equal 3 per cent. of the total number of wage earners in the United States, of which there are thirty million.

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*Read before the Obstetrical Society, College of Physicians and Surgeons, Philadelphia, May 3, 1917.

The significance of this fact may not appear evident on first thought, but, when we consider that the one million married working women in this country are to be the mothers of a new generation of wage earners, we are at once impressed with the dangers confronting such a race which must of necessity be reared under conditions less favorable than those under home environments. Statistics clearly show that the number of still-births and the rate of infant mortality are much greater among working women than among those not gainfully employed. The diseases incident to occupations are such as to render the female worker less fit to endure the trials of motherhood. Furthermore, among the low wage earners there is a tendency to work close up to the period of confinement, which is especially detrimental to the life of the child. There is a likelihood of the same mother returning to work before the full period of physiologic rest, resulting in pelvic complains at a later period.

The child also has a greater struggle for existence through lack of natural feeding occasioned by the absence of the mother from home during working hours, for infant mortality is determined not only by the factor of breast feeding, but also by the duration of breast feeding.. Employment of women is consequently causing both a decrease in the duration of nursing and in its frequency. The effect on the offspring is becoming rapidly apparent in the larger number of schoolchildren who are found to be poorly developed, ill nourished and who show many physical defects indicative of early neglect by the mother.

Motherhood and infanthood must be protected, and the needless loss of life occasioned by childbirth and the appalling infant death rate from other causes should be checked. In 1913 about 15,000 women died from conditions incident to childbirth in the United States. In the same year approximately 250,000 babies died before their first birthday. Fully 25 per cent. of these could have been saved. The problem is surely a good sound business proposition. The medical profession, in all its earnest propaganda of education, has failed flatly in showing an appreciable result along these lines except in isolated instances. Education is long, delayed, tedious and expensive, more especially in the hands of busy doctors. Those few who have specialized along public health work have proved, beyond all doubt, the value of education along the lines of life conservation, but as was mentioned above, the work is slow and the advance slower.

There is need of some great sweeping measure which will awaken interest in the protection of infancy and motherhood. The enactment of laws aiming to safeguard these natural assets are indications of their acknowledged importance. Widows are compensated in many states for the maintenance of their children, women are protected against occupational diseases by shorter working hours, and against hazardous employments, and in four of our states regulations are in force requiring a definite rest period after confinement. There is need, however, of more extensive legislation affecting those classes which in time of sickness cannot well afford the proper medical treatment, care and supplies.

Insurance seems to be the universal cry for the protection of maternity. Grant that its advantages are worthy of trial, its detail management must be planned by our statisticians and actuaries. That portion which concerns the doctor should be submitted to the profession for perusal before enactment, or else we will have the same disagreements as resulted in the Workmen's Compensation Act.

One thing will be definitely accomplished and that is the elimination of a large proportion of free medical services. Every insured mother will demand private and undivided attention. Nursing, medicines and abundant care will be forthcoming at the expense of the state, the employer and the insured. Neglect will be a factor of the past; expert supervision will be demanded at a markedly reduced rate of charge. Nothing will be unpaid for. The practice of midwifery will be divided among all physicians and no set few will be given favoritism. There will be no hoarding of patients and the greater part of the practice of medicine will revert to the general practitioner. But other than self interest to the doctor, the public itself will receive the greatest benefit and the country at large become wealthier by reason of healthier mothers, healthier babies and better citizens.

582 City Hall.

REPORT OF A CASE OF SNAKE BITE, WITH TREATMENT *

ALVIN S. DAGGETTE, M.D.
PITTSBURGH

Gustav A. Link of the Carnegie Museum was bitten by a rattlesnake at 2:30 p. m., Aug. 15, 1916, and died at 5:30 a. m., Aug. 16, 1916, fifteen hours after being bitten.

He did not report his injury for a period of fifteen or twenty minutes after the accident, when Dr. C. H. Eigemann of the Department of Ichthyology and R. H. Santens of the Taxidermy Department rendered first aid by applying a bandage which the patient later removed.

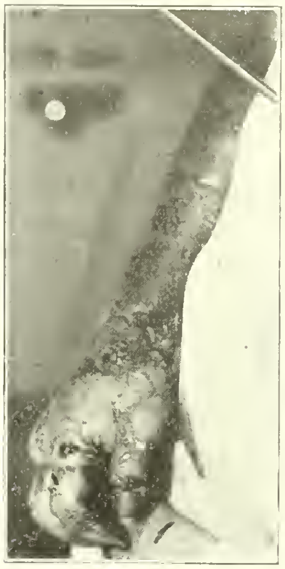

Figure 1

After telephoning me what had happened, the authorities sent him to my office, which he reached about 3 p. m., one-half hour after being bitten. Examination showed his right hand swollen to twice its natural thickness through the palm, and the swelling having extended half way to the elbow. On the first phalanx of the index finger of the right hand near the back were two punctured wounds about one-half inch apart and one-eighth inch long lying parallel to the finger from which blood was oozing. On a line with the two openings down near the joint was an incised wound, clear cut, but barely penetrating the epidermis, about one-fourth inch long. Pulse was normal, skin cold and clammy, and repeatedly bathed in perspiration. The wound was very painful and the patient complained of a feeling of numbness and "pricking, like when your hand or arm is asleep," as he expressed it. His pupils were dilated, and his eyes had a glassy stare, and his face mirrored a mentality of abject fear and dread because of his unfortunate plight. His gait was very unsteady and swayed from side to side in walking. He also complained of drowsiness and increasing weakness.

As soon as he reached my office I applied a tourniquet to the forearm up near the elbow. I also gave him strychnin, $\frac{1}{30}$ grain. I then injected permanganate of potash around the wound, between the wound and the body. After having the patient draw the blood and venom from the wound, I incised freely down to the bone between the punctured wounds, also counter incisions at the point of puncture. I then carefully washed the incision with a solution of permanganate, by the use of a hypodermic needle, until walls were clean and free from blood. I then immersed the hand in a hot solution of permanganate.

At 4 p. m., he complained of great pain and pleaded that the tourniquet be removed; on refusal he went into a state of collapse almost falling from his chair. This was followed by a period of stupor, to arouse him from which it was necessary to get him on his feet and walk him about the room. At 4:30 his hand, wrist and forearm, over which blebs were rapidly forming, were black to the tourniquet. At this time swelling was rapidly increasing above the point of ligature. Red lines extended up the arm over the biceps. The hemopexia of the blood being shown by thrombosis forming in course of veins as indicated by a tumefaction of a pink color, later to be followed by dark blebs filled with sanguineous fluid. Ecchymosis under the arm was marked at that time (4:30 p. m.) as was also enlargement of the glands in and below the axilla. The patient's lips were purple and blood settled under the skin of lower lip to a distance of one-fourth inch from the mucous margin. Hemoptysis appeared and continued until the end. Hematuria was present after reaching the hospital at 5 p. m. His heart weakened rapidly requiring repeated heart tonics to keep up its force. Nausea and vomiting was followed by chills, and a cold, clammy perspiration bathed his face and forehead. There were tremors of the muscles and an expression of agony invaded his eyes.

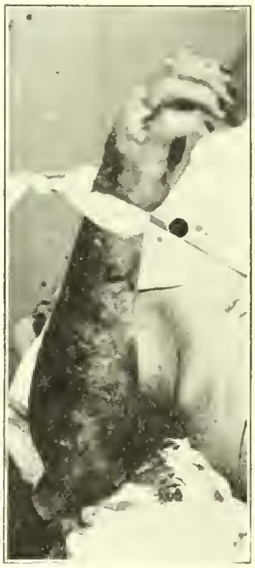

Figure 2

The tourniquet was removed at 4:30 and preparations made to remove him to the hospital while he was temporarily relieved from pain. The removal of the tourniquet at that time was imperative as the venom had passed far beyond its confines and the hand and wrist below that point had become so enormously

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* Read before the Allegheny County Medical Society, Nov. 21, 1916.

swollen and covered with large blebs, it seemed that the hand would burst and I feared delay might cause extensive sloughing. After having applied all means of relief at hand I telephoned to Dr. A Leteve of the McGee Pathological Institute, as well as to other laboratories, but to my dismay could secure no antivenomous serum. Recalling a case of rattlesnake poisoning treated at the New York Zoological Garden, Jan. 27, 1916, and reported by Dr. Raymond L. Ditmars in the Zoological Society Bulletin of May, 1916, I requested Dr. Eigemann to try to get Dr. Ditmars on the telephone as he might be able to give valuable assistance. In a few minutes he answered the call and assured us we had done everything we could until the serum which we requested, would arrive, and promised to dispatch it as soon as possible. He later sent a telegram stating that he had the serum placed in the hands of the Pullman porter of the train which would arrive in Pittsburgh at 3:30 a. m. The train arrived on time and the serum was rushed to the hospital and administered within twelve hours after having been ordered from New York.

Having reached the hospital, the patient was put to bed and his whole arm and hand again submerged in a hot permanganate bath, which was continued throughout the treatment. A consultation of physicians present was held and a line of treatment then suggested was carried out until the serum arrived. He continued gradually to sink during the night and at 12 p. m. Dr. Leteve suggested an intravenous injection of 1,500 c.c. of normal salt solution to which was added adrenalin solution. Although the pulse at that time was almost gone, it returned full and strong during the time of the injection, giving us renewed hope for his final recovery; this lasted only about one-half hour when the injection was again repeated, but with no appreciable results. His agony became more intense, his breathing more labored; and fully realizing his approaching dissolution, he turned, and in a clear tone of voice, with a mentality seemingly unimpaired, bade all about him farewell.

TREATMENT OF SNAKE POISONING

Nonspecific includes all means at our command for the control of the venom: Prevention of the absorption and destruction of the venom locally; the tourniquet, for the prevention of the venom entering the general circulation, and destruction of the venom locally by oxidation through the use of permanganate of potash, 1/100. Gold chloridi, 1/1000, chlorid or hydrochlorid of calcium, 1/60 to 1/72, and chromic acid, 1/100, constitutes our chemical means and must be applied locally by injection.

Specific treatment: From a medical standpoint any discussion of snake bite must take into consideration the treatment of the same by the use of antivenomous serums, the utility of which has been proved beyond a doubt, especially in the old world, India, Australia, as well as the new world, United States and Brazil.

The ideal treatment would be a special serum for each species, which is, of course, out of the question, first, because of the cost, if it were possible to produce it, and second, because of our inability always to know what species did the biting. Fortunately we can divide all venoms into two general classes, hematoxins and neurotoxins, the former producing clotting of the blood in veins with considerable swelling, and the latter producing a toxic condition of the nervous system accompanied by little local manifestation. At present a serum for each of the main classes, when known, and a mixed serum for use when it is impossible to tell the species producing the sting, is available, and should be in reach of those whose duty it is to see that those bitten by venomous serpents are properly treated.

It is not the purpose of this paper to go into the chemicophysical properties of snake venom, but to call your attention anew to a subject that I feel we have not given the attention it merits. Much literature on the subject may be found in the writings of Brazil, Palmette, Cunningham, Frazer, Lamb, Noguchi, Flexner and others. The ratios of chemical properties of snake venom differ widely in different species, neurotoxins and hematoxins predominating in different proportions, together with other poisonous principles in combination.

Dr. Prentiss Wilson of Washington, D. C.,[1] reported a series of 742 cases of poisoning from snakes indigenous to the United States. Of that number 566 cases were bitten by snakes of a species that were definitely known, and ninety-nine, or about 17½ per cent., were due to copperhead bite, with five deaths, or a mortality of 5 per cent. I could secure no data on snake bites in Pennsylvania or United States, as "vital statistics" include death from that cause under "accidental poisoning."

Dr. Vital Brazil of San Paulo, Brazil, has prepared a serum for crotalus poisoning, and in a series of 295 cases treated with that serum but one was fatal, practically one third of 1 per cent.

The world is indebted to Dr. Albert Calmette of Lille, France, for an antivenomous serum that has been produced at the Pasteur Institute in that place during the last twenty years. Calmette's serum is particularly successful after bites of cobra and allied species, and he believes his serum will suffice for poisoning by the whole subfamily *Colubridæ;* many oppose that theory, among whom may be mentioned Dr. Vital Brazil, who believes that if you do not know the species of biting serpent you should use a polyvalent serum; that is, a serum produced by injecting into the animal the venom of many serpents. He is now producing a serum from rattlesnake, lance head and coral snakes, together with a mixed serum.

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[1] Archives of Internal Medicine, August, 1908.

The subfamily to which rattlesnakes belong, the *Crotalidæ* (pit vipers), is represented in both the new and old world, but the subfamily, *Viperidæ* (true vipers) without head pits is confined to the old world. The subfamily to which the cobra belongs, the *Elapidæ*, is represented in the new world by a single genus, *Elaps*, and two small species in the United States. Elapine snakes are very plentiful in Australia, making up the majority of the serpent life; in fact, the greater portion are poisonous, exceeding by far the harmless ones. Most of the *Colubridæ* belong to the family *Elapidæ*, especially the subfamily *Elaps*. Many are called coral snakes, and are found in northern South America, together with Florida. They are about 3 feet long and the venom is very toxic. Their poison fangs are small and situated at the back part of the jaw, thus rendering their sting less likely to inject the venom. *Elaps fulvius*, the "harlekin snake," and *Elaps euryxanthus*, the "coral snake," abound in Arizona and southeastern United States, extending up the mountains to a height of 6,000 feet. Although handicapped by having postmaxillary poison fangs, they are often fatal to man. There are twenty-six species of elapine snakes in Mexico, central and northern South America, and two species in the United States. An outline of the more common species of poisonous serpents in the world representing the two toxic principles in the venom, neurotoxins and hematoxins, may help us to remember the geographical distribution of each class, thus enabling us to get a more comprehensive view and apply our serotherapy with a better understanding than from mere written description without that aid. To that end I have prepared the accompanying chart.

THE SNAKES, ORDER OPHIDIA

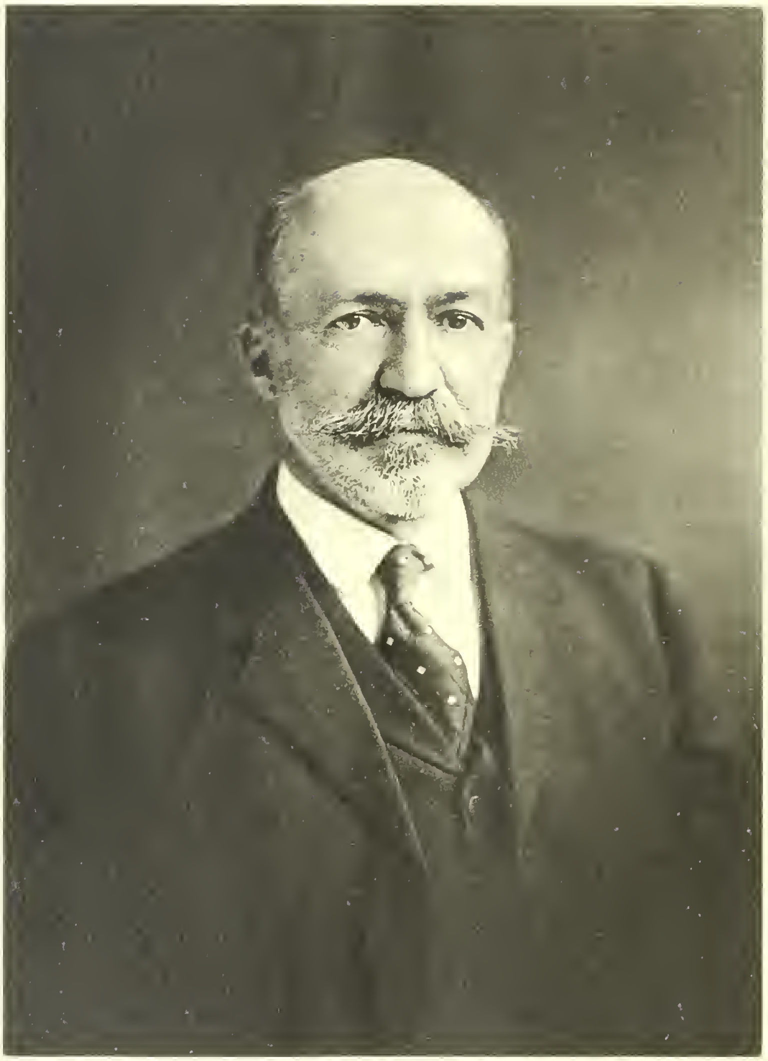
Colubridæ	Viperidæ True vipers No head pits.	Crotalidæ Pit vipers
Old and New World	Confined to Old World	Old and New World
Elapine Cobra, etc.	European viper (Vipera berus) Sand natter (Vipera ammodytes) Tic polonga (Vipera russellii) Rhinoceros viper (Bitis nasicornis) Puff adder (Bitis arientes)	Rattlesnake (Crotalus horridus) Copperhead (Ancistrodon contortrix) Water moccasin (Ancistrodon piscivorus) Fer de lance (Lachesis lanceolatus) Bush master (Lachesis mutus)
	Tree vipers	Tree viper (Palm viper — Lachesis schlegelii)
		Harlekin snake (Elaps fulvius) Coral snake (Elaps euryxanthus) Coral snakes of South America

Scanning the outline as to world distribution and applying our knowledge from written descriptions would suggest an application of the various serums about as follows: Anticrotalus serum for bites of rattlesnakes, covering nineteen species, as well as the larger species of old world vipers, the latter having a venom similar to that of the crotalus; antilachesis serum for bites of water moccasin, copperhead, old world tree vipers, together with the South American genus *Lachesis*, for which it was first prepared by Dr. Brazil; the Calmette antivenene serum for the very large group falling under the classification elapine, of which we have two species, *Elaps fulvius* and *Elaps euryxanthus* in the United States, also the other coral snakes of Mexico, Central and South America, the old world cobra, and other like species of the elapine group so numerous in Australia. These three specific serums, together with the mixed serum for cases in which we cannot determine the nature of the venom, today constitute the range of our present means for combating accidental poisoning from snake venom.

400 South Craig Street.

THE NONGONORRHEAL TYPE OF OPHTHALMIA NEONATORUM

Dr. J. H. Thompson (*Jour. Mo. St. M. A.*, January, 1917) does not share the prevalent belief that ophthalmia neonatorum is invariably caused by infection from gonorrhea. He is convinced of the existence of a leukorrheal ophthalmia, that is to say, a disease of the conjunctiva which is nongonorrheal. Some of the subacute blenorrheas, coming on in the first days of life and running a protracted course, are characterized by a discharge of mucopurulent matter and look as if the lacrimal duct was occluded. They are not dangerous but annoying. The writer recommends as the sovereign remedy nitrate of silver, 3 to 5 grains to the ounce of water, applied to the everted lids once a day, the solution being washed off before the lids are replaced. The writer points to the fact that so often we fail to find in the discharge of acute ophthalmia any organisms and thinks it is presumptive to assume that some forms of blenorrhea in the newborn are of some unknown infection, as often nothing more than the xerosis bacillus is discovered. For the treatment of these cases he recommends nitrate of silver, but cautions never to let up until the eye is cured. He usually starts with a 5 grain solution applied twice a day, then once a day, weakening the solution as the eye improves.—*Critic and Guide*, August, 1917.



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Samuel G Dixon

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LANCASTER—Walter D. Blankenship, M.D., Lancaster.
LAWRENCE—William A. Womer, M.D., New Castle.
LEBANON—George R. Pretz, M.D., Lebanon.
LEHIGH—Thomas H. Weaber, M.D., Allentown.
LUZERNE—Lawrence A. Sheridan, M.D., Wilkes-Barre.
LYCOMING—Wesley F. Kunkle, M.D., Williamsport.
McKEAN—James Johnston, M.D., Bradford.
MERCER—Frank Bleakney, M.D., Grove City.
MIFFLIN—Paul M. Allis, M.D., Lewistown.
MONROE—William E. Gregory, M.D., Stroudsville.
MONTGOMERY—Benjamin F. Hubley, M.D., Norristown.
MONTOUR—Cameron Shultz, M.D., Danville.
NORTHAMPTON—Walter D. Chase, M.D., Bethlehem.
NORTHUMBERLAND—Horatio W. Gass, M.D., Sunbury.
PERRY—E. Kenneth Wolff, M.D., Ickesburg.
PHILADELPHIA—Samuel McClary, 3d, M.D., Philadelphia.
POTTER—Elwin H. Ashcraft, M.D., Coudersport.
SCHUYLKILL—George O. O. Santee, M.D., Cressona.
SNYDER—R. W. Johnston, M.D., Selins Grove.
SOMERSET—H. Clay McKinley, M.D., Meyersdale.
SULLIVAN—Carl M. Bradford, M.D., Forksville.
SUSQUEHANNA—Dever J. Peck, M.D., Susquehanna.
TIOGA—Harry C. Harkness, M.D., Mansfield.
UNION—William E. Metzger, M.D., Alvira.
VENANGO—J. Irwin Zerbe, M.D., Franklin.
WARREN—Ira A. Darling, M.D., Warren.
WASHINGTON—John B. McMurray, M.D., Washington.
WAYNE—William T. McConvill, M.D., Honesdale.
WESTMORELAND—Ellsmer L. Piper, M.D., Export.
WYOMING—Herbert L. McKown, M.D., Tunkhannock.
YORK—Charles H. May, M.D., York.

All communications should be addressed to the PENNSYLVANIA MEDICAL JOURNAL, Athens, Pa.

The Medical Society of the State of Pennsylvania does not assume responsibility for any statements or opinions published in this Journal.

ATHENS, PA., SEPTEMBER, 1917

PRESIDENT DIXON

The election to the office of President of the Medical Society of the State of Pennsylvania of one who for twelve years has enforced the police laws of the commonwealth; of one who in the course of his duties has found it necessary at times to enforce in a drastic way against medical men the requirements of these laws, both with regard to reporting forthwith in writing cases of communicable disease occurring in the practice of physicians, and in the filing of birth and death certificates, is the very highest compliment that could be paid to a state official.

Samuel Gibson Dixon needs no introduction to the medical men of Pennsylvania. As is well known, he is descended from a long line of Quaker ancestry, was born in Philadelphia in March, 1851; educated at the Mantua Academy, Philadelphia; graduated from the Mercantile College; admitted to the bar in 1877; graduated from the University of Pennsylvania Medical School in 1886, was made professor of hygiene in 1888, and in 1889 professor of sanitary engineering in the same university. Almost from the time he received his doctor's degree he has been a research worker.

Dr. Dixon's early researches in the bacteriology of tuberculosis fixed his reputation as a scientist. He was the first to describe the branched form of the tubercle bacillus, doing so while a student of Klein's in London in 1886. He was the first worker to produce immunity to the tubercle bacillus, his paper being published six months ahead of Koch's in 1889. In 1890 Dr. Dixon became professor of bacteriology and microscopic technology in the Academy of Natural Sciences, executive curator in 1892, president in 1896, and has been successfully reelected president for twenty-one years.

For six years Dr. Dixon was an active member of the Board of Education in the city of Philadelphia, and during this time was chairman for the Committee on Hygiene. As early as 1891, in an address before the annual meeting of the State Board of Health, fourteen years before becoming commissioner of health, Dr. Dixon with prophetic vision outlined a public health program, marvelously complete and advanced even for today. Unlike most persons who see such visions, he was given opportunity and ample funds to carry out, during his twelve years of executive experience, nearly every advanced step that he advocated in that address. It was largely because of his established reputation as a scientist, hygienist, research worker and organizer, that Governor Pennypacker selected him as the first Commissioner of Health of the Commonwealth of Pennsylvania in 1905.

In 1909 the University of Pennsylvania conferred on Dr. Dixon the honorary degree of Doctor of Laws, and in 1916 Lafayette College conferred on him the degree of Doctor of Sciences.

Dr. Dixon's versatility and business acumen make it easily possible for him to keep up his interest in many lines of endeavor at the same time. Each different line of work seems to furnish him recreation from his burdens along other lines.

He is a trustee of the University of Pennsylvania, vice president of the Ludwick Institute, vice president of the Zoological Society of Philadelphia, a member of the Board of Managers of the Grandom Institution, a member of practically every scientific, philanthropic and charitable organization of any consequence in the eastern part of Pennsylvania.

Dr. Dixon's contributions to science are numerous and cover many lines of research. His active interest in the Medical Society of the State of Pennsylvania extends over a period of many years, and notwithstanding his onerous duties as commissioner of health, he has found time to attend some portion of nearly every session during the last twelve years, and has personally contributed orations or papers at many of them. In 1906, at the Bedford Springs session, he delivered the "Oration in Hygiene"; in 1909, Philadelphia session, he presented a paper on the "Prevalence of Cancer"; in 1910, Pittsburgh session, he contributed a paper on "Some Considerations on Infant Mortality"; in 1911, Harrisburg session, a paper on "Pennsylvania's Work in Poliomyelitis"; in 1912, Scranton session, a paper on "Medical Inspection of Schools in the Fourth Class Districts in Pennsylvania"; in 1915, Philadelphia session, a paper on "Quarantine of the Home as Practiced by the Department of Health in Pennsylvania"; in 1916, Scranton session, a paper on "Typhoid Fever."

For twelve years Dr. Dixon has been commissioner of health for the commonwealth of Pennsylvania. He came to the office of commissioner with his splendid equipment and ideal foundation training; selected at a time when the great press of the country was ready to promote public health education, and when the legislature of the commonwealth was prepared to furnish ample funds for financing public health work. Dr. Dixon quickly surrounded himself with an able staff, each one of whom formed a sound silent cog in the public health machinery, and almost from its beginning the Department of Health of the state began to show definite results.

It is not possible in a brief editorial to summarize more than a few things that have been accomplished in this twelve-year period. The collection of complete birth records throughout the commonwealth; the collection of full data concerning the deaths throughout the state; the compilation of morbidity statistics; the arranging, filing and permanent cataloguing of all of this material; the tabulating of these collections by units of civil population and for the state as a whole—this work of itself was a gigantic task. Two and a half million birth certificates; a hundred thousand stillbirth certificates; one and a half million death certificates; three quarters of a million of marriage certificates; one and three quarter millions of records of communicable diseases; all of this data, classified, bound and filed in fireproof vaults, boiled down and systematically published in the annual reports, gives some idea of a single division of the organization, that of vital statistics.

Working out the details of rural quarantine, a method of procedure previous to 1906 practiced spasmodically for a single disease, smallpox; applying quarantine throughout the rural districts as it was applied in the larger well-organized municipalities prior to that time; carrying the advantages of preventive medicine and protection of quarantine to a group of two and a half million rural citizens, was one accomplishment of another division. This division, in addition to handling quarantine in more than four hundred thousand premises in twelve years, organized a system of sanitary inspection of dairies and carried it on for a period of four years, reaching as many as seventy thousand dairies in a single year; and later, since 1911, operated a system of school medical inspection in fourth-class districts, this work alone reaching nearly a half million rural school pupils annually. These things were bound to show in the saving of human life.

Early organization of a laboratory that placed scientific advantages in the hands of physicians in remote sections of the commonwealth, the study of the blood for malarial parasites, Widal tests, sputum analyses, Wassermann tests, study of pathologic fluids and tissues, of water supplies throughout the whole state, the furnishing of diphtheria antitoxin, tetanus antitoxin, tubercle bacillus products, etc., not only gave the rural practitioner and the physician in the small town the same advantages as his city brother, but gave the rural citizen and the state's poor the life-saving advantages of all these procedures.

The organization of a division of sanitary engineering gave supervision of the treatment of the public water supplies, enforced the abatement of nuisances detrimental to health, removed pollution from streams at more than one hundred thousand places, hastened the construction of one hundred sewage-treatment plants and the filtration of two hundred public water supplies, and protected the water supply in nearly all of the larger municipalities of the commonwealth. Such protection was sure to tell in mortality rates.

Taking advantage of public health education and accepting the offer of the legislature in 1907, tuberculosis sanatoria and tuberculosis dispensaries were provided the state. The organizing of three large tuberculosis sanatoria, with a bed capacity of twenty-three hundred free beds; a state-wide system of dispensaries, one hundred and twenty-four, with one hundred and twenty visiting nurses to help the poor and teach them how to take care of themselves, thus relieving the practicing physician of the burden of caring for the poor and helpless sick and at the same time giving them the one chance of recovery, gave the commonwealth very promptly a system far in advance of that of any other American state.

With an organization with such far-reaching authority and ably financed, fully supported at every step with a system of educational publicity that is the envy of other commonwealths, it is not surprising that practically every medical man in the commonwealth should have cooperated with the department, and that every public health organization in the state should profit and share in the results. The wonderful cooperative work of the medical profession and of public health organizations, the assistance of the press and of the public, and the following out of the many thousands of details by the State Department of Health made possible the tremendous reductions in morbidity rates and in mortality rates, the most striking of which can be shown in the diseases easily preventable.

That the death rate from typhoid fever should have dropped from 54.9 per one hundred thousand in 1906 to about 12 per hundred thousand population in a dozen years surpassed predictions of the most sanguine. That the death rate from tuberculosis should have dropped from more than 150 per hundred thousand to less than 120 was hardly to have been expected; that diphtheria death rates shoul have dropped from 34 per hundred thousand to 24 per hundred thousand might have been anticipated with the free distribution of antitoxin to the many thousands of poor heretofore unable to procure it. That the death rate from whooping cough should have been cut in half and that thousands of lives should have been spared from measles, scarlet fever and other communicable diseases followed naturally as a result of the application of public health principles and medical cooperation.

A single paragraph of figures * with calculated saving of life had the old rates obtained in itself tells the wonderful tale of more than one hundred thousand lives saved through public health and cooperative efforts, and many hundreds of thousands of cases spared the distress and money loss of illness and crippling effects of disease. In the accomplishment of these results Dr. Dixon was the central figure, always the leader and director.

The bringing of a man of such organizing ability to the head of the Medical Society of the State of Pennsylvania augurs well for reform and for the working out of new policies to the benefit of the medical profession. It means the proper safeguarding of the interests of the profession at a time when medical men are required to make great sacrifices for the flag.

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*Year	Population Mid-year	Deaths From All Causes	Rate Per 1,000	Calculated Deaths 1906 Rate Obtaining	Saving as Compared with 1906
1906	7,141,766	114,435	16.0		
1907	7,279,792	115,969	15.9	116,476	508
1908	7,417,816	112,246	15.1	118,685	6,439
1909	7,555,841	111,062	14.7	120,893	9,831
1910	7,963,866	119,815	15.6	123,101	3,287
1911	7,831,904	111,292	14.2	125,210	14,018
1912	7,969,942	111,842	14.0	127,509	15,677
1913	8,107,980	117,995	14.5	129,727	11,733
1914	8,246,018	114,832	13.8	131,936	17,168
1915	8,384,482	115,311	13.8	137,151	21,840
1916	8,522,856	124,548	14.6	134,151	9,603
Total saved					110,104

AUTOMOBILE ROADS TO PITTSBURGH

According to reliable information the Lincoln Highway is now the best road from Harrisburg, and points east and south from there, to Pittsburgh. It is said to be in excellent condition, passes through splendid scenery and is free from tolls, except a nominal one at the bridge over the Susquehanna at Harrisburg. There are now no detours necessary.

Inasmuch as the pike along the New York Southern Tier is excellent and far better than Pennsylvania roads, members from the northern counties in Pennsylvania would do well to go by way of Hornell and Olean. There is a bad detour out of Olean on the main pike and one should leave at the south end of Main Street, cross the river, and follow the river on the south side to Allegany. There is an excellent cement road to Carrollton, and Salamanca, macadam to Randolf and asphalted pike to Jamestown, good macadam roads without hills to Corry and Meadville. If weather is fine and scenery becomes an object, leave the Jamestown road at Red House, just beyond Salamanca, and follow the river to Warren. This takes you through the Cornplanter Valley, as interesting historically as any Indian Reservation. If at night or in bad weather, leave the Jamestown road at Falconer, just before reaching Jamestown, and cut off to Frewsburg. This is the Jamestown-Warren road which is a very good road, but torn up at the Jamestown end at present. From Titusville or Oil City one may choose again according to weather conditions or daylight, as to whether to follow the river and see the rugged country by way of Franklin, Harrisville and Slippery Rock or farther west to the farms and fertile valleys by way of Mercer to Butler.

Probably the most traveled road this summer and the most direct route from Mercer to Pittsburgh is by way of Leesburg, Harlansburg, Zelienople and Wexford.

THE VALUE OF CLINICAL EVIDENCE

If a layman is sick, takes a certain medicament and gets well, he is likely to credit the medicine with the cure, and ignore the fact that he might have recovered without any treatment.

Through the same sort of reasoning our materia medica is encumbered with a host of drugs, the curative virtues of which have been judged by clinical trials that failed to take into account the natural course of the disease they are supposed to have cured or of the many things that were done for the patient.

The unreliability of much of the so-called clinical evidence and the means and the precautions to be adopted in the securing of trustworthy clinical information was brought out in a paper read at the recent meeting of the American Medical Association by Torald Sollmann, M.D., professor of pharmacology at the Western Reserve University.

Dr. Sollmann explains how difficult it is to establish the effects of a medicine on a disease because it is impossible to know what would have happened had the medicine not been administered. The many difficulties in the way of establishing the effect, if any, of a medicine on the course of a disease has blocked therapeutic advance, says he, has disgusted critical men to the point of therapeutic nihilism, and has fertilized the ground for the commercial exploitation of worthless remedies. Referring to the "clinical evidence" which manufacturers of proprietary remedies present to the Council on Pharmacy and Chemistry (of which he is a member) to substantiate the curative claims, Sollmann says:

"When the Council demands evidence of the usefulness of a remedy, the manufacturers generally respond with every sign of enthusiasm. They may have ready a series of articles already published, or they instruct their agents to bring in letters from physicians. The last method seems to meet the most cordial response, judging from the deluge of letters and opinions that floods the Council. The quality of the published papers is a fair reflection of the deficiencies of what is still the common type of clinical evidence. A little thought suffices to show that the greater part cannot be taken as serious evidence at all. Some of the data are merely impressions—usually the latest impressions of an impressionable enthusiast."

Sollmann describes two plans whereby reliable clinical information may be obtained:

"The first is the statistical method in which alternate patients receive or do not receive the treatment. This method can usually only be of value when a very large series of patients is available. Even then, its value is limited or doubtful, because it cannot take sufficient account of the individuality of cases.

"The second method consists in the attempt to distinguish unknown preparations by their effects—the method that might be called the 'comparative method' or the 'blind test.' In this, the patient, or a series of patients, is given the preparation which is to be tested, and another preparation which is inactive, and the observer aims to distinguish the two preparations from their effects on the patient. The same principle can be applied in distinguishing the superiority of one preparation over another. In this case, the two preparations would be given alternately to different patients, and the observer would try to distinguish them by their effects."

The author concludes that this method is really the only one that avoids the pitfalls of clinical observation; it is the only method that makes the results purely objective, really independent of the bias of the observer and the patient.

As regards the reliability of the second method, we may remind our readers that when this was made use of it was found impossible to distinguish the effect of the ordinary "synthetic" sodium salicylate from that produced by the high priced "natural" sodium salicylate, or to distinguish a proprietary solution of mercuric iodid in oil, for which extravagant claims of superiority are made, from a solution made in the A. M. A. chemical laboratory.

WEAR YOUR UNIFORM

Each commissioned medical officer in attendance at the Pittsburgh Session is requested to wear his uniform.

One fourth of all the Philadelphia doctors have been examined for admission to the Medical Officers' Reserve Corps, and more than 1,200 Pennsylvania physicians have been accepted. It is thought that this state leads all of the states in the percentage of physicians who have made application for membership. At this writing 10,000 have joined the Reserve Corps. Ten thousand more physicians are imperatively needed at once. The army must have as many medical men as Congress will provide for. Our soldier boys have a right to first-class medical and surgical treatment. What is even more important, our army must have sufficient medical men and with sufficient authority properly to protect the camps and fields from unnecessary infection and epidemics.

The *Journal of the Iowa State Medical Society,* in speaking of the need for medical men, says: "Our responsibility is greater than that of any other class. We know what the loss will be if we do not give our services. The people do not know except in a very general way. If the public did know and saw able-bodied young doctors staying at home to profit by their own and their absent neighbors' practice (the men who place their country before all else) the derelict would find his position anything but desirable in a right-minded community. If you ask 'Is the doctor's duty and obligation greater than others?' we unhesitatingly say, 'Yes,' because he is the possessor of knowledge and skill that others do not possess and which cannot be delegated. One man says he has a practice of $12,000 a year, another doctor says he has a practice of $50,000 a year. Shall he give it up just for his country's sake? We regret exceedingly that we have not the skill in the use of the English language to make a suitable answer."

PROTECTING THE PRACTICE OF PHYSICIANS IN THE SERVICE

The majority of the county societies in the state have passed resolutions, promising on the part of their members to take care of the practice of such physicians as have entered the service of our country and to turn over a portion of their collections, from 33 to 66 per cent., to the families of the absent physicians or to hold same for the physicians on their return from service. Several of the larger societies have completed detailed arrangements for carrying out these measures. The other societies should see that this matter is not overlooked, but that as soon as a physician is called to a training camp the physicians remaining at home shall begin to turn over to his family the designated portion of fees derived from those who naturally would have been his patients.

It is probable that the state society in session at Pittsburgh this month will make some definite arrangement for systematically carrying out the spirit of this movement. Possibly the state secretary or a committee appointed by the society will furnish and distribute cards to be given to the patients of physicians entering the service, and notices to be posted in the offices of all physicians.

Each county society should at once make arrangements for the payment of the 1918 annual dues of members who are away from home in their country's service so as to protect the membership of such men in the county, state and national societies. The member who is not willing to pay his portion of such dues should himself be urged to enter the service of his country.

ARMY SURGEONS—NOTE!

This JOURNAL will be sent subscribers who are in military service at home or abroad, without additional expense, on receipt of full military address. Keep your address up to date by dropping a card to Pennsylvania Medical Journal, Athens, Pa.

HONOR ROLL FOR SEPTEMBER

The following component county societies have forwarded the *per capita* assessment for more members than they paid for in 1916. The figures indicate the percentage of members paid for 1917 as compared with the number paid for 1916:

	Per Cent.
Schuylkill County	113
York County	113
Center County	111
Delaware County	110
Adams County	109
Bedford County	109
Crawford County	109
Huntingdon County	109
Lehigh County	108
Tioga County	108
Cumberland County	108
Dauphin County	106
Greene County	105
Luzerne County	105
Montgomery County	105
Montour County	105
Northumberland County	105
Philadelphia County	105
Potter County	105
Somerset County	105
Clinton County	104
Carbon County	103
Washington County	103
Allegheny County	102
Chester County	102
Columbia County	102
Clearfield County	101
Blair County	101

ADJOURNED MEETING OF THE AMERICAN ACADEMY OF MEDICINE

An adjourned meeting of the American Academy of Medicine will take place in the William Penn Hotel, Pittsburgh, Tuesday, September 25, at 5 p. m., or on adjournment of the afternoon meeting of the Section on Medicine.

CHANGES IN MEMBERSHIP OF COUNTY SOCIETIES

The following changes have been reported up to August 27:

Allegheny County: *Death.*—William B. Ewing (University of Pittsburgh, '96) in Pittsburgh from heart disease, July 17, aged 51. *Removal.*—William F. Ross from New Kensington (Westmoreland County) to First National Bank Bldg., Eastern Ave., Aspinwall.

Berks County: *Removal.*—Fremont W. Frankhauser from Reading to Wernersville.

Carbon County: *Removal.*—Robert A. Christman from Weissport to Palmerton.

Chester County: *Removal.*—Franklin C. Brush from Philadelphia to Cor. Hector and Harry Sts., Conshohocken (Montgomery County).

Clarion County: *New Members.*—James M. Hess, Tylersburg; W. C. Keller, New Bethlehem.

Clearfield County: *New Member.*—Frank Klare Miller, Madera.

Fayette County: *New Members.*—George W. Neff, Masontown; Ebenezer S. B. Owen, Point Marion; J. F. Ritter, Uniontown; William W. Warne, Dunbar. *Transfer.*—Charles C. Gans, to Franklin County Society.

Franklin County: *New Member.*—Charles C. Gans, Chambersburg (by transfer from Fayette County Society). *Removal.*—Rebecca P. Laughlin from Waynesboro to Pen Mar.

Indiana County: *Removal.*—John N. Camp from Ernest to Foxburg.

Lackawanna County: *New Members.*—William K. Dolan, Francis P. Moylan, Scranton; Harry E. Jones, Dickson City; Sidney W. Rivenburg, Clifford (Susquehanna County); Howard L. Vail, Dalton. *Death.*—Isaac S. Graves (New York University, New York City, '88) in Jermyn, July 16, aged 57.

Lancaster County: *Removal.*—James Augustus Smith from Reamstown to 208 South 31st St., Philadelphia.

Lebanon County: *Removal.*—John E. Marshall from Lebanon to Annville.

Lehigh County: *New Members.*—Morris H. Koch, James S. Smith, Allentown.

Northumberland County: *Transfer.*—Joseph T. Murphy to Schuylkill County Society.

Philadelphia County: *New Members.*—Walter L. Culbertson, Ralph L. Engle, James P. Hutchinson, Gerald D. O'Farrell, Jr., Louis Segal, George B. Slifer, Mervyn Ross Taylor, Charles W. West, Philadelphia. *Deaths.*—Henry H. Doan (Univ. of Pennsylvania, '90) in Philadelphia, July 5, from nephritis, aged 49; Jacob J. Frankel (Medico-Chirurgical Coll., '99) in Philadelphia, July 31. *Removals.*—Dorothy Child from Lawrence, Kansas, to 5023 McKean Ave., Germantown; John F. Lewis from Philadelphia to St. Francis Hospital, 142d St., New York City; Tallyrand D. Myers from Los Angeles, Calif., to P. O. Box 314, Pasadena, Calif.

Schuylkill County: *New Member.*—Joseph T. Murphy, Pottsville (by transfer from Northumberland County Society). *Removal.*—John D. Riley from Mahanoy City to 901 South 60th St., Philadelphia.

Somerset County: *New Member.*—Harry Boydston Smith, Acosta.

Tioga County: *New Member.*—David A. Patterson, Westfield.

Venango County: *New Member.*—Clarence E. Imbrie, Cochranton (Crawford County). *Removal.*—Charles P. Snyder from Polk to 1831 Seventh Ave., Beaver Falls (Beaver County).

Washington County: *New Member.*—George K. Hays, Monongahela.

Westmoreland County: *New Members.*—Hugh Bailey Barclay, Greensburg; George Bowman, Irwin; William A. Copeland, Vandergrift; Charles C. Crouse, Derry; Howard B. Emerson, Yukon; John L. Marchand, Prinzapolka, Nicaragua, Central America. *Removal.*—Lee Monte Sankey from Jeannette to 2005 South Harrison St., Fort Wayne, Ind.

PAYMENT OF PER CAPITA ASSESSMENT

The *per capita* assessment for the year 1917 has been received from component county societies since July 26, as acknowledged on page 788 of the August Journal, as follows:

Aug. 6,	Clarion	33–34	6815–6816	$ 5.50
Aug. 11,	Clearfield	68	6817	2.75
Aug. 13,	Westmoreland	148–152	6818–6822	13.75
Aug. 20,	Fayette	119–120	6823–6824	5.50
Aug. 21,	Westmoreland	147	6825	2.75
Aug. 25,	Venango	55	6826	2.75
	Philadelphia,	1817–1824	6827–6834	22.00
Aug. 29,	Lawrence	56	6835	2.75
Aug. 30,	Franklin	52	6836	2.75
Aug. 31,	Blair	92–93	6837–6838	5.50

STATE NEWS ITEMS

MARRIED

Dr. Charles Roland, Reading, and Miss Pauline V. Schmidt, Philadelphia, June 30.

Dr. Isaac Ivison Parsons and Miss Elizabeth G. Hennessey, both of Media, recently.

Dr. William A. McHugh, Jr., and Miss Gwendolyn Barnes, both of Uniontown, July 10.

Dr. Leo Joseph Wojczwnski and Miss Mary D. Rzepski, both of Philadelphia, June 20.

Dr. William David Cleland, Harlansburg, and Miss Mary G. Long, New Wilmington, July 24.

Dr. Karl Frederick Koenig and Miss Mabel E Frankenfield, both of Philadelphia, June 30.

DIED

Dr. Walter J. Saunders (University of Baltimore, '91) in West Wyoming, July 15, aged 62.

Dr. Franklin B. Lauderbaugh (Univ. of Maryland, Baltimore, '83) in James Creek, June 26.

Dr. Thomas A. Carey (Jefferson Med. Coll., '84) of Pen Argyl, in Philadelphia, July 25, aged 71.

Dr. George B. Reynolds (Univ. of Pennsylvania, '91) in Scranton, July 26, from brain abscess, aged 47.

Dr. Raleigh Claude Farquhar (Jefferson Med. Coll., '03) of Monongahela, in Pittsburgh, August 10, aged 38.

Dr. Frederick T. Harpel (Hahnemann Med. Coll. & Hosp., Philadelphia, '00) of Shamokin, in Coshocton, O., aged 41.

Dr. Ira Walton Marstellar (Univ. of Vermont, Burlington, '84) in White Haven, July 11, from kidney disease, aged 58.

Dr. Marx Stecher Wiesen (Medico-Chirurgical Coll., '14) in Philadelphia, July 31, from the effects of a gunshot wound received in a fight with a burglar, aged 26.

ITEMS

Typhoid Fever.—A large number of cases of typhoid fever were reported at Hanover, York County, on August 20.

Passed State Board.—Of the 179 graduates examined by the Bureau of Medical Examination and Licensure in July all but six were passed.

Major William F. Manges, chief roentgenologist of Jefferson Medical College, is conducting a school of instruction for members of the Medical Reserve Corps.

Methodist Hospital Unit Nearly Complete.—With the exception of three reserve nurses, the naval hospital unit of the Methodist Hospital of Philadelphia is complete.

Infant Mortality.—Two hundred thirteen babies died in Philadelphia during the week ending August 4, 72 of them being under one year of age. Seven of these babies died from whooping cough.

Dr. Thomas McCrae, professor of internal medicine in Jefferson Medical College, has been made chief medical officer of the Ontario Military Hospital, Orpington, Kent, England. This institution is said to provide 2,040 beds.

Drs. C. J. Marshall, Philadelphia, state veterinarian, and Louis A. Klein, dean of the School of Veterinary Medicine at the University of Pennsylvania, have been appointed members of an advisory board by Surgeon-General William C. Gorgas, Washington, D. C.

Dr. Alonzo E. Taylor, University of Pennsylvania, will visit the training camps for medical officers and deliver a series of lectures on food values, food needs, and the preparation and conservation of food. He will also give a popular lecture in Pittsburgh on Thursday evening, during the state society session.

Dr. John W. Luther, Captain in the Medical Officers' Reserve Corps, left Palmerton, August 16, for a two weeks' instruction under Dr. Alexis Carrel, Rockefeller Institute, New York, preparatory to work in France. Dr. R. A. Christman will be in temporary charge of the Palmerton Hospital during the absence of Dr. Luther.

Ambulance Troopers Examined.—August 6 work was begun by a War Department board of five physicians examining all the soldiers of the United States Ambulance Camp at Allentown. The board consists of Drs. Rae S. Dorsett, head surgeon; Albert E. Blackburn, John R. Robrecht, Louis Jurist and William S. Wray, all of Philadelphia.

Three Ambulances for the Red Cross.—The students of the Friends' Central School of Philadelphia have raised sufficient funds to purchase three ambulances, which recently were presented to the Red Cross. The chassis were purchased from the Ford Automobile Company. The J. G. Brill Company, Philadelphia, built the bodies in accordance with specified regulation trench ambulances now being used in France.

Looking for Incipient Tuberculosis.—Captain M. H. Fussell and Lieutenants David Riesman and Augustus A. Eshner, Philadelphia, are visiting the various army encampments in aid of the efforts to prevent tuberculosis invading the ranks of officers and enlisted men in the new army. This detailing of lung specialists to make examinations for tuberculosis after the regular army physicians have been over the men is a recent move of the surgeon general's office, prompted by the English and French medical men, who brought word that, even with the utmost care, tuberculosis has been one of the greatest foes of the allies.

Philadelphia to Treat Teeth of Rejected Men.—The city has thrown open its Dental Dispensary, City Hall, for the free treatment of the teeth of men who have been drafted or have volunteered for the army, and have been rejected because of defective teeth. Dr. Edward S. Mershon, chief of the dispensary, has asked Dr. Krusen, director of health and charities, to increase the staff of dental surgeons and to keep the dispensary open until late in the evening, if necessary. He also made arrangements with the Dental Preparedness League, whereby each member agrees to treat one soldier free.

Dr. George E. de Schweinitz, Philadelphia, has been commissioned as a major in the Medical Reserve Corps and placed upon a special commission. The government has determined that not only shall soldiers and officers be keen of sight on entry into the service, but also that they shall remain so. To accomplish this Surgeon-General Gorgas has called to his aid the country's leading oculists. Dr. de Schweinitz is in Washington, where he expects to remain about six weeks. There he has been spurring the enlistment of eye specialists and also aiding the government in the setting of proper standards and directing this branch of the surgeon-general's work. Later the work of this commission will be of unusual value. Flames and gases of various kinds have worked great havoc with the soldiers' eyes and many unusual problems will be presented to specialists.

Infantile Paralysis.—The State Department of Health on August 13 gave out the following statement: New Castle and vicinity have 21 cases and 2 suspects, and Lancaster County has reported 34 cases. Housing surveys have been made. Commissioner Dixon gave out the results of investigations made by Chief Medical Inspector Royer in adjoining states as follows: "New York, 124 cases from April 1 to July 30, of which 75 occurred in New York City, no tendency toward grouping anywhere in the state; New Jersey, 49 cases since April 1, of which 7 were in Newark, no grouping; West Virginia, 60 cases, only grouping in Monongahela; Delaware, 2 cases; Maryland, 31 cases from April 1 to August 8; Ohio, 89 cases from April 1 to July 30, with tendency toward grouping at Martin's Ferry; Virginia, 49 cases in last week of July and first week of August. In Pennsylvania there were 35 cases reported from April 1 to July 1, as against 13 for last year in the corresponding months. In July of this year there were 43 reported, while July of last year showed a total of 178, with the epidemic in progress. The figures by counties for July were: Allegheny, 5; Beaver, 1; Crawford, 1; Dauphin, 6; Lancaster, 17; Lawrence, 5; Mercer, 1; Westmoreland, 1; Butler, 1, and Philadelphia, 2. Three cases were reported in McClellandtown, Fayette County, August 25. The number of cases in Lancaster County up to August 25 was 41.

GENERAL NEWS ITEMS

The Fourth Cuban Medical Congress will be held during December 16-22.

The New York Evening Post, beginning with July 14, is giving an article each Saturday on the importance of prevention and control of venereal diseases.

Physicians who have been drafted are not prohibited from applying for commissions in the Medical Officers' Reserve Corps according to a recent ruling of the War Department.

Educational Number.—*The Journal of the American Medical Association* for August 18 is the annual educational number and contains a vast amount of valuable information relating to medical education and medical colleges.

Japanese Medical Officers on Way to Roumania.—One hundred Japanese physicians are said to be on the way to Roumania in charge of Dr. Motegi, chief of the Saiseikai Hospital and head of the surgical department of the Keio University.

Accepts Certificates of National Board.—At its recent business meeting, the Vermont Board of Medical Registration voted to accept certificates granted after examination by the National Board of Medical Examiners. This is the twelfth state in which either by special legislation or by board rulings certificates of the national board have been recognized.

The Surgeon-General and Drafted Students.—We are asked to announce that the Surgeon-General's Office desires the names, addresses and ages of men in each class of every reputable medical school who have been drawn and accepted for military service under the provisions of the selective draft, these names to be vouched for by the deans of the respective medical colleges.

Anesthetics for France.—In response to an urgent cablegram from Major Grayson M. P. Murphy, head of the Red Cross Commission in France, the Red Cross is planning to ship to Europe 100,000 half pound tins of ether. Because of the shortage of anesthetics in France, the Red Cross War Council, in addition, has authorized Major Murphy to establish, as soon as practicable, a central plant to manufacture nitrous oxygen. American machinery will be shipped to France for this purpose, and American operatives will be sent over.

The Rockefeller Institute for Medical Research, early in August, opened its War Demonstration Hospital, composed of portable buildings, such as are used in France. The purposes of the hospital are to treat patients suffering from infected wounds by methods which have been developed in European army hospitals, especially the methods developed by Dr. Alexis Carrel and Dr. H. D. Dakin, and to demonstrate these methods in a practical way to American surgeons. The hospital will make no charge for treatment or care. Dr. Carrel, under leave from the French government, will supervise the demonstrations.

Health Rating of Portland.—To further enhance the rating of Portland, Ore., the Board of Health is making use of the card system for informing patrons of the cleanliness of the various shops. A store handling food products is required to display an "A" card if its sanitation averages 90 per cent., as governed by the rules of the Board of Health. "B" indicates that the methods of the shop are up to only 80 per cent., and "C" covers anything under 80 per cent. The card must be displayed in such a place that every patron of the shop may see it, and frequent inspections by officers of the city cause this requirement to be obeyed. Portland is jealous of her rating as the second healthiest city in the United States, and is doing everything within reason to raise the rating. A noticeable improvement in all shops has been noted since they have been required to advertise the degree of sanitation they maintain.

Unexpired Leases.—A great number of physicians who have enlisted for service during the present war are embarrassed by unexpired leases. It seems that when physicians are so much needed in the United States Army, every effort should be made to relieve them of contracts rightfully binding in times of peace, but which might be better waived in times of national peril. It is possible to create a strong public opinion favoring the canceling of leases in such cases. If advisable, the matter can be carried to Congress for consideration. But first, the Physicians' Lease Committee wants figures and facts. It will be appreciated if those who have definite knowledge of leases where doctors have joined the U. S. service and the landlord has refused to cancel the same will send this information to R. R. Denny, Chairman of Lease Committee, Chicago Rotary Club, care of Dennos Food Sales Co., 359 East Ohio St., Chicago, Ill.

American Women's Hospitals.—The War Service Committee of the Medical Women's National Association has organized the American Women's Hospitals for work at home and abroad. The Surgeon-General of the Army and the General-Director of the Department of Military Relief of the American Red Cross have approved the provision made for service to the army and to the civil population. The work will be officially part of the medical and surgical service of the American Red Cross. The scope of the plan is a broad one. It includes units for maternity service and village practice in the devastated parts of the Allies' countries and hospitals run by women for service there as well as for the United States army in Europe. In this country acute and convalescent cases will be treated in hospitals equipped for the purpose; soldiers' dependents will be cared for, interned alien enemies will be given medical aid and substitutes will be provided to look after the hospital service and the private practice of physicians who have gone to the front. The first units hope to go to France and to Serbia in the early fall. Headquarters have been established at 637 Madison Ave., New York City. Dr. Rosalie Slaughter Morton is chairman of the War Service Committee.

National Board of Medical Examiners.—The second examination of the National Board of Medical Examiners was held in Washington, D. C., June 13-21, 1917. Of the twenty-seven who applied, twenty-five were found to have the essential preliminary and medical qualifications, and thirteen of these appeared for the examination, the others having been ordered on active duty. The subjects of the examination and the relative value of each were: anatomy, 100; physiology, 75; chemistry, 75; pathology, 50; bacteriology, 50; materia medica, pharmacology and therapeutics, 75; medicine, 200; surgery, 200; obstetrics and gynecology, 100; hygiene and sanitation, 50, and medical jurisprudence, 25. A percentage of 75 was required to pass. Falling below 65 in more than two subjects or below 50 in more than one constituted a failure. The following colleges were represented:

PASSED

Name and College—	Year of Graduation
Adrian Stevenson Taylor, University of Virginia and Harvard Medical School	1905 and 1916
George B. Packard, Harvard Medical School	1914
Roscoe Clayton Webb, Johns Hopkins	1914
Walter Philip Kreichbaum, Northwestern University	1914
Arthur Beck Hamilton, University of Pennsylvania	1915
Douglas Power Murphy, University of Pennsylvania	1916
Clarence Stiles McKee, University of Pennsylvania	1915
James Lancelot Wilson, Columbia University, College of Physicians and Surgeons	1916
Harvey Welton Snyder, Atlanta Medical College	1916

FAILED

College—	Year of Graduation
University of Michigan	1910
Northwestern University	1905
McGill University	1916

War Meeting for Health Officers.—The American Public Health Association will hold a war meeting at Washington, D. C., Oct. 17-20, 1917, which will take the place of the annual meeting, which was to be held in New Orleans in December. The papers and conferences will deal largely with the health problems created by the war—the food supply, communicable diseases among soldiers, war and venereal disease, war and the health of the civil population, etc. President Wilson has said, "It is not an army we must shape and train for war; it is a nation." Go to the Washington meeting; then come back and do your bit. Washington will be crowded and those interested are urged to reserve hotel accommodations at once. These may be canceled, but it will be impossible to obtain rooms at the last moment. Any hotel or railroad can give a list of Washington hotels. Preliminary programs will be automatically mailed to all members of the A. P. H. A. about September 15 Nonmembers may receive them free by writing to The American Public Health Association, 126 Massachusetts Ave., Boston, Mass.

BULLETIN EXCERPTS

BULLETIN, CHESTER

Alcohol in some form has been used as a drug by practically all nations from prehistoric times to the present. It is probably the oldest drug in use. It has had the sanction of medical authority and the confidence of the laity. Most textbooks still recommend it as a stimulant. There has been a belief in its value as a food to a less extent perhaps than as a stimulant. Until a comparatively recent time its value as a therapeutic agent was not questioned, but with the modern crusade against the use of alcohol as a beverage its value in medicine has come more and more into question until now even its most intelligent advocates admit that its status as a remedy is undetermined. Considering these facts it will be seen that the resolution offered at the recent meeting of the American Medical Association in New York is revolutionary in character. The Council on Health and Public Instruction offered it as their unanimous opinion that "alcohol has no drug value either as a stimulant, as a tonic or as a therapeutic agent and that it has no food value." The House of Delegates did not accept this resolution, but substituted and passed the following: "Its use in therapeutics as a tonic, as a stimulant or as a food has no scientific basis" and that "the use of alcohol as a therapeutic agent should be discouraged." Is it possible that physicians who have prescribed alcohol for thousands of years with confidence in its virtues have been mistaken? If so, is it not a grave reflection on the intelligence and accuracy of their observations? Were the benefits they thought they saw purely psychological and the result of the confidence they had in the drug? We confess we are puzzled, for we belong to that numerous class of physicians who think they have seen alcohol do good in proper cases. As is so often the case the evidence obtained by scientific experiment does not agree with the opinions formed from human experience. Which evidence we accept will depend on our mental habits and cast of mind. As a rule we suppose young physicians will accept the verdict of science and older ones will be governed by their experience.

BOOKS RECEIVED

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

First Lessons in Spoken French for Doctors and Nurses. By Ernest H. Wilkins, Algernon Coleman and Ethel Preston. Chicago: The University of Chicago Press. Price, 50 cents net; postpaid, 54 cents.

Modern Dietetics. Feeding the Sick in Hospital and Home with Some Studies on Feeding Well People. By Lulu Graves, Dietitian Lakeside Hospital, Cleveland. St. Louis: The Modern Hospital Publishing Company 1917.

The Fundus Oculi of Birds, Especially as Viewed by the Ophthalmoscope. A Study in Comparative Anatomy and Physiology. By Casey Albert Wood. Illustrated by 145 drawings in the text; also by sixty-one colored paintings prepared for this work by Arthur W. Head, F.Z.S., London. Published by H. A. Fox, 7 W. Madison St., Chicago, Ill. Price, $15.00. Chicago: The Lakeside Press.

Handbook of Gynecology for Students and Practitioners. By Henry Foster Lewis, A.B., M.D., Professor and Head of Department of Obstetrics in Loyola University School of Medicine; Chief of Obstetric Staff of Cook County Hospital; Fellow and ex-President of the Chicago Gynecological Society; Late Assistant Professor of Obstetrics and Gynecology in Rush Medical College (in Affiliation with the University of Chicago), and Alfred de Roulet, B.Sc., M.S., M.D., Professor of Gynecology in Loyola University School of Medicine; Attending Gynecologist to the House of the Good Shepherd, and to St. Bernard's Hospital; Obstetrician and Chief of Staff of St. Margaret's Home and Hospital. With 177 illustrations. St. Louis: C. V. Mosby Company, 1917. Price, $4.

The Ophthalmic Year Book. Volume XIII. Containing a Digest of the Literature of Ophthalmolgy for the Year 1916. Edited by Edward Jackson, M.D., Assisted by Theodore B. Schneidemann, M.D.; William Zentmayer, M.D.; William H. Crisp, M.D.; Casey A. Wood, M.D.; Harry S. Gradle, M.D.; Robert Henry Elliott, M.D.; Hugo W. Aufmwasser, M.D.; Meyer Wiener M.D.; Will Walter M.D.; Florence Mayo Schneideman, M.D.; Nelson Miles Black, M.D.; Charles Zimmermann, M.D.; Thomas B. Holloway, M.D.; D. Forest Harbridge, M.D.; Charles P. Small, M.D.; Emory Hill, M.D.; William C. Finoff, M.D.; Marcus Feingold, M.D.; and M. Uribe Troncoso, M.D. Illustrated. Published with Assistance of the Knapp Testimonial Fund of the Section on Ophthalmology of the American Medical Association. Denver: Herrick Book and Stationery Company, 1917.

The Practical Medicine Series. Comprising ten volumes of the year's Progress in Medicine and Surgery. Under the General Editorial Charge of Charles L. Mix, A.M., M.D., Professor of Physical Diagnosis in the Northwestern University Medical School. Series 1917, Volume IV. Gynecology, Edited by Emilius C. Dudley, A.M., M.D., Professor of Gynecology, Northwestern University Medical School; Gynecologist to the St. Luke's and Wesley Hospitals, Chicago; and Sydney S. Schochet, M.D., Instructor in Gynecology, Northwestern University Medical School; Adjunct Gynecologist, Wesley Hospital, Chicago. Price, $1.35. Volume V. Pediatrics, Edited by Isaac A. Abt, M.D., Professor of Pediatrics, Northwestern University Medical School; Attending Physician, Michael Reese Hospital. Orthopedic Surgery, Edited by John Ridlon, A.M., M.D., Professor of Orthopedic Surgery, Northwestern University Medical School, with the collaboration of Charles A. Parker, M.D. Price, $1.35. Chicago: The Yearbook Publishers, 608 S. Dearborn Street. Price of series of ten volumes, $10.00.

BOOK REVIEWS

FAUGHT'S BLOOD PRESSURE. By Francis A. Faught, M.D., formerly Instructor in Medicine at the Medico-Chirurgical College of Philadelphia. Second edition. Octavo of 280 pages, illustrated. Philadelphia: W. B. Saunders Company.

In the second edition of Dr. Faught's book on Blood Pressure the author has ably accomplished his purpose in producing a practical treatise on this important subject for the general practitioner. He has covered all the scientific and practical points in a clear and concise manner. The chapter on therapeutic value of drugs affecting blood pressure is very well written and gives an exhaustive view of this aspect of the subject of blood pressure, which will be especially appreciated by the busy doctor. G. A. K.

MISCELLANEOUS NOSTRUMS, prepared and issued by the Propaganda Department of the American Medical Association, 535 North Dearborn Street, Chicago, Ill. Third edition, 127 pages, illustrated, paper binding. Price, 15 cents.

This work should be read by every physician and intelligent layman. Physicians will do well to have a few copies on hand to pass around among their patients. It gives information, brief in some instances, extensive in others, about products that are worthless or dangerous, sold under claims that are misleading or false. More than fifty preparations are dealt with, among them being: Duffy's whisky, absorbine, jr., nuxated iron, peruna, citrolax, Baughn's pellagra cure, Case's rheumatic specific, Mayr's stomach remedy, Warner's safe remedy, tanlac.

SOCIETIES

SECTION ON GENERAL MEDICINE OF THE COLLEGE OF PHYSICIANS, OF PHILADELPHIA

Meeting of May 28, 1917, at 8:15 p. m.

Dr. Clifford B. Farr, Chairman of Section, Presiding.

Report of Two Cases of Tuberculosis of the Adrenal Glands (Exhibition of Specimens). Dr. Joseph A. Moore: Case 1. Messenger boy, aged 18, who reported family and personal histories negative, enjoyed fair health until three weeks before admission to hospital; he then complained of "cold." A few days later he developed nausea and vomiting with great weakness. Severe pain, situated in the umbilical region, was somewhat relieved by ice-bag. Patient was brought to St. Joseph's Hospital at 1 p. m., April 27, 1915, in semi-moribund condition. Examination showed harsh breathing at both apices, heart extremely weak. The patient died at 5 p. m. Postmorten examination revealed caseation of both apices slight, small cavity in left apex and fibrocaseous tuberculosis of both adrenal glands. Microscopic examination of lungs and adrenals showed tuberculosis.

Case 2. H. C., aged 24, Irish-American, was a student of theology. Family history was negative. He had had ordinary diseases of childhood; had slight cough for two or three months previous to admission to hospital, with no noticeable loss of weight. For previous month he had been feeling somewhat tired and depressed; went to bed, Feb. 20, 1917, owing to extreme languor and beginning nausea when about; he started at first to vomit meals. An examination by the attending physician revealed no physical signs referable to lungs, heart or liver; after resting in bed patient was able to retain food somewhat better. Diet consisted of milk, junket, gruels, crackers. Patient complained of pain in epigastrium and developed a yellowish tint in conjunctivæ. Skin had a sun-tanned appearance which patient explained as being due to exposure to sun. He had always been an out-of-doors man. The foregoing symptoms gave the impression that the patient suffered from duodenal catarrh. The young man became rapidly worse. The feeling of weakness deepened and actual weakness was apparent; the pulse became rapid and feeble, respiration rapid and he complained of pain in the epigastrium and of feeling cold and thirsty. He was restless and vomited food immediately on swallowing. Patient was then removed to St. Joseph's Hospital, February 25, and was seen to be in a semimoribund condition. Three attempts to take blood pressure failed, as Tycos instrument did not register any pressure. He showed great browning of skin of face. Heart sounds were very weak and distant. Skin was extremely cold and clammy and appearance somewhat ashen gray. Several hours after admission he died. Postmortem showed: Young adult male, medium stature, dark complexion; panniculus adiposus well preserved; great omentum contained large quantities of fat. Mesenteric glands were enlarged. Peyer's patches were prominent, no ulceration. Spleen was normal; liver normal. Right lung was adherent to chest wall, recent adhesions; on section of apex, one small tubercle was noted. Left lung was normal, heart and vessels normal, kidneys normal. Left adrenal was enlarged and of varying consistency; on section, caseation was seen. Microscopically it showed tuberculosis. Left adrenal was not grossly diseased, but microscopically showed tuberculosis.

Dr. E. J. Beardsley: I should like to ask Dr. Moore about the first case: How extensive was the tuberculous lesion of the lungs?

Dr. Clifford B. Farr: Some time ago I showed before the Pathological Society a specimen of fibrocaseous adrenals. The patient was in the Presbyterian Hospital and Dr. Sailer had made a diagnosis of Addison's disease, principally because of the asthenia and the pigmentation of the mucous membranes. I have had one other case since, but not so well marked. In this case the adrenals were tremendously enlarged, extremely firm and on section showed the tubercles. I should like to ask Dr. Moore whether both adrenals were enlarged.

Dr. James Tyson: I should like to ask whether the patient died as the direct result of the disease.

Dr. Moore, closing: Replying to Dr. Farr, both adrenals were diseased. In answer to Dr. Tyson's question, I believe that death was the direct effect of the disease from the absolute loss of the renal function. The pigmentation was not very marked in the first case; in the second case it was not noticed at postmortem. The resident had thought the man was tanned.

Lymphoid and Cystic Bodies of the Urethra as an Evidence of Tuberculosis. Dr. P. S. Pelouze: The lesions in question are very small sessile or moderately pedunculated masses of tissue usually located on the lateral walls of the prostatic urethra just distal to the vesical neck. They may be upon almost any portion of the urethral mucosa, especially that of the posterior urethra. In the female they appear at the anterior trigonal angle and throughout the urethra A more or less recent gonorrhea seems to play a rôle in encouraging the tissue invasion in most cases. Histologically they are typical tubercles and show the inherent tendency of such lesions to caseate. The cystic forms are probably due to such caseation, the surface being the last to break down. Tubercle bacilli have been demonstrated in the bodies from the living patient as well as those at autopsy.

There may be no subjective symptoms and, on the other hand, they may range from a very slight burning in the fossa navicularis to the severe symptoms of a violent vesical tuberculosis. A clear urine with a few shreds is almost the rule, which condition seems to be well accounted for by the chronic follicular prostatitis that is almost invariably present also. Some few cases show the turbid urine typical of advanced renal tuberculosis.

Of the 51 cases reported, nine were seen but once and could not be studied. Of the 42 cases studied, 37 showed more than reasonable evidences of a coexisting tuberculosis and five are still being studied for some confirmation of tuberculosis elsewhere. Four autopsy specimens were found by Dr. Alexander Randall, three of which were from bodies dead of tuberculosis. It is, therefore, contended that these lesions are invariably an evidence of a more or less active tuberculosis elsewhere in the body.

The prognosis seems good if local treatments to the urethra and prostate are discontinued and general measures of an anti-tuberculous nature are instituted.

Dr. Thomas C. Stellwagen: I did not come here as a champion of Dr. Pelouze, for I think he needs none. I have watched his work for the last three years and am thoroughly satisfied that these bodies mean tuberculosis, not necessarily tuberculosis of the kidney, but unquestionably tuberculosis somewhere in the human economy. I believe that in a great many instances tuberculosis can be demonstrated in the kidney. Some members of the urological specialty look rather askance upon this possibility. I think, however, that they have not been brought face to face with the situation and do not understand it as it exists. If upon examination I find that a man has these bodies I institute tuberculosis treatment. A number of cases which I thought due to some intercurrent infection but which did not do well on the usual treatment were examined and these bodies found. When the patients were placed upon tuberculosis treatment, all improved. One man in my office today had gained 18 pounds since being placed on the treatment, and his symptoms have largely disappeared. Just what to do with these patients is the problem uppermost in Dr. Pelouze's mind. I know that he has not come to any conclusion in his study of these cases without careful consideration of every problem. I feel that the matter is of utmost importance to the genito-urinary man and to the internist. I believe that today there are hundreds of so-called posterior urethral conditions in which the sooner they are studied the better. Many men do not believe that these bodies are important. I do, because I have seen enough of Dr. Pelouze's work to believe that the matter is of the utmost importance to the genito-urinary man.

Dr. Robert G. Torrey: This subject has justly excited a great deal of interest. Any knowledge which will aid us in the diagnosis of tuberculosis in its early stages is of importance. It is hard to understand what relation these bodies bear to pulmonary tuberculosis. To me, it is almost an unknown experience to find a case of active renal tuberculosis in the clinics for pulmonary cases. I think the significance of these bodies still unexplained, but if they represent urogenital tuberculosis their presence is of greatest importance, as tuberculosis of this tract has a strong tendency to become generalized as acute miliary tuberculosis.

Dr. E. J. G. Beardsley: I have been greatly interested in Dr. Pelouze's work. Reference was made to a patient of mine, a woman, in whom at the time I had Dr. Pelouze see her I did not associate the two conditions. Having treated her for years I knew she was tuberculous. My experience in many of these cases is that by the average man they are not ordinarily called tuberculosis: they are all latent forms of the disease and often never get very much better or worse. Physical examination, however, shows the disease of the lungs. There will be disagreement on the nature of the condition. I remember one case in which the man had had pneumonia six months before and his condition was supposed to be unresolved pneumonia. Many of the patients give a history of blood spitting. I remember but one of Dr. Pelouze's cases in which I would hesitate to give a diagnosis of pulmonary tuberculosis. The most striking observation in a large series of cases in the out-patient medical department of a hospital is the number of latent lung cases. Men who have not watched these patients will treat them for chronic indigestion, neurasthenia and various other conditions. The majority of patients seen by Dr. Pelouze for the out-patient medical department were running a subnormal temperature. I feel perfectly confident that the cases are all latent forms of pulmonary tuberculosis. An interesting thing to me in the out-patient work of our hospital has been that in practically all cases of latent tuberculosis we have been able to find that there have been one or more cases of active tuberculosis in the patient's family. Whether Dr. Pelouze's findings really mean as much as we at present ascribe to them, certainly they have a very important significance in these latent forms of tuberculosis.

Dr. Clifford B. Farr: Will Dr. Pelouze tell us what relation these bodies bear pathologically to ordinary tubercles. Are they a modification of the tubercles or something entirely different? He spoke of their having an area of caseation.

Dr. Joseph A. Moore: Dr. Pelouze has presented a very strong paper; anything that will establish the diagnosis of renal tuberculosis is of vast importance. I have done some laboratory work along this line, using Wolf's method of examining the urine for tuberculosis. In ten days we can establish the evidence of tuberculosis in a guinea-pig. We have been in the habit of taking the sediment, washing it with distilled water, bruising the inguinal glands of a guinea-pig three or four months of age to make it vulnerable to the attack, and injecting one or two drops of the sediment. Within ten days, if the case be positive, an enlarged gland is present. The animal is given ether, the gland excised and on section a drop of pus obtained which will usually show the tubercle bacilli. If pus is not present but the gland enlarged, sections may be made and stained and the evidence of the bacilli obtained in that way. This method may be used not only in the demonstration of the tubercle in the urine but in other material in which it is suspected.

Dr. Pelouze, closing: I have been skeptical of the importance of these masses and have tried my best to prove my ground as I went along. I have not accepted any man as tuberculous until I found other evidences besides these masses in his urethra. These urethral lesions are found in a class of cases which run the gamut of the genito-urinary specialist as a rule. They are said to have a chronic follicular prostatitis, and they have it but it does not clear up. My feeling has been that the urologist should make it a rule thoroughly to examine the prostatic urethra of any patient with chronic follicular prostatitis which is not better after from six to eight weeks' treatment. The frequency with which these cases have been encountered has of late brought me to the belief that when one has a case of chronic follicular prostatitis to treat he is much safer to make the urethral examination on the start. In most of the cases reported no one would suspect tuberculosis from physical appearances. The importance of the subject from the urological standpoint probably is that the patients are taken out of the realm of prostatic massage, a treatment which would be harmful to them. Cases 5 and 7 had a long series of prostatic massages even after these growths were found. These patients were in the hands of men who did not accept these as evidence of tuberculosis and thoroughly believed in prostatic massage. Out of the whole series they were the only patients who were in good physical condition when first seen that have not improved in their general health. They both developed an active pulmonary tuberculosis; one of them a tuberculous kidney, and the other a tuberculous kidney and a tuberculous epididymitis. Three patients have developed unmistakable signs of renal tuberculosis since I have been observing them; some had it when first seen and in others there is no reason to believe that renal tuberculosis is present. I believe the tubercle bacilli are present at some time in the urine of all of these people. Their number, however, is generally small, which probably accounts for the number of negative animal inoculations.

Dr. Farr has asked what relation these bodies bear to general tuberculosis, and I fear it will take years of observation before a positive answer can be made. Histologically we can say, I think, that they are tubercles. Whether they bear a more direct relation to a pulmonary lesion than to some urogenital focus is a question to be settled by further study, but the latter seems the more plausible. It has been suggested by Dr. Randall that they may be secondary to some focus in the seminal vesicle, but from the frequence of renal involvement it has been my feeling that they are more often secondary to such a condition.

THE RELATION OF SYPHILIS TO AORTITIS AND DILATATION OF THE AORTA. By Drs. R. Max Goepp and Edward Steinfield (by invitation): A diseased condition of the aorta, with or without dilatation, manifested by certain more or less definite subjective symptoms and physical signs, occurs in syphilitic individuals. The lesions consist of discrete patches on the intima of the vessel, presenting a pearly, translucent appearance. Histologically, all three coats are involved; the cells of the intima proliferate and cause thickening of that layer; the media presents the changes of chronic inflammation, in places its elastic tissue is replaced by fibrous tissue. In the order of frequency and importance, the symptoms are precordial distress, dyspnea on exertion, palpitation, cough, hoarseness and, rarely, difficulty in swallowing. Physical signs are aortic systolic murmur, the signs of cardiac hypertrophy, increase of the retromanubrial dulness, pulsation of the carotids, and a receding pulse. The objective changes are not always proportionate to the apparent gravity of the condition. The characteristic murmur is systolic, heard with greatest intensity in the second right interspace and extending upward along the manubrium; short, usually only moderately loud, soft or harsh. Differentiation from murmur of aortic stenosis; quality of second aortic sound is normal or accentuated in aortitis; muffled or absent in stenosis. The retromanubrial, substernal, or aortic dulness in a group of 14 normal adults, 10 males and 4 females, gave values ranging for the males from 6.0 cm. to 10.75 cm., and for the females from 4.5 cm. to 6.2 cm. The aortic dulness was mapped out on a recent cadaver, and the underlying structures exposed by dissection. The drawing of this dissection shows that the greater portion of the dulness, embracing the left half and about one third of the right half, corresponds to the arch of the aorta above and the pulmonary artery below, while the remaining two thirds of the right half of the dulness overlies the superior vena cava, the cartilages of the first and second ribs and the intervening interspace. It appears that the retromanubrial dulness possesses only a limited value as a clinical sign of aortic dilatation. In the series of 12 cases reported the aortic dulness ranged from 6.0 cm. to 12 cm. In 6 of the cases (50 per cent.) a definite history of syphilis was elicited; in 4 cases syphilis was denied; the remaining 2 were noted as suspicious. The Wassermann reaction was positive in 8 cases; negative in 4. Statistics on the relation of the Wassermann reaction to aortitis were cited. Vesicular manifestations are usually late, but the tissues of the heart and great vessels may be invaded early. One patient in the series had a chancre at the time he was studied; another gave the history of chancre four months previously; a third patient had had sores in the mouth three years previously. As many patients present no symptoms refereable to the circulation, even when definite physical signs of aortic involvement are present, it is probable that some of the early cases are overlooked until the development of an aortic insufficiency or aneurysm creates noticeable subjective symptoms for which relief is sought, when the lesion is discovered by systematic physical examination.

E. J. G. BEARDSLEY, Clerk.

CCUNTY SOCIETY REPORTS

FOURTH CENSORIAL DISTRICT—AUGUST

The fourteenth annual outing of the Fourth Censorial District, comprising Dauphin, Lancaster and Lebanon Counties, was held Friday, August 17, at beautiful Mt. Gretna, headquarters being at Hotel Conewago.

The day was ideal and from all directions came many by train and automobile. A luncheon was served, after which followed the regular business meeting. Dr. Alfred S. Weiss presided, while Dr. Allan Rutherford performed the secretarial duties Reports were heard from the different societies, Dauphin County being represented by Dr. McAlister, former president of the state society, and Dr. Kunkel; Lancaster County, by Dr. Horace C. Kinzer, and Lebanon County by Drs. Brubaker and Bucher.

The election of officers for the ensuing year resulted as follows: President, Dr. John Oenslager, Jr.; secretary, Dr. Harvey Miller. The next meeting will be held "somewhere in Dauphin County."

An elaborate banquet was served in the spacious dining hall of the hotel after the business meeting.

GEORGE R. PRETZ,
Reporter for Lebanon County Society.

FIFTH CENSORIAL DISTRICT—JULY

The meeting of the Fifth Censorial District was held at Gettysburg on July 19, and was well attended by the members of our society. The business meeting was held in the court house. Dr. C. W. Eisenbower was elected president for the ensuing year. The address of welcome was delivered by Dr. Eugene Elgin, president of the Adams County Society. The annual address was delivered by Dr. David Van Camp, president of the association. He spoke very aptly upon the doctor as a teacher and leader in his community. Major Edward Martin of Philadelphia delivered the principal address of the day, which was entitled "First Dressing of Wounds in Military Surgery." In addition to his talk upon this subject he gave us many timely pointers upon other military topics and particularly those bearing upon our profession. This address alone was well worth the time spent. In addition to these speakers we had with us the army medical staff at present camping at Gettysburg, the various members of which gave us the various duties entailed upon the ranking officer, the sanitary officer, the regimental officers and their assistants. Altogether the meeting was a typical Fifth Censorial District meeting, well worth the attendance of all of the members of the various counties. Following these talks we adjourned to meet at the Eagle Hotel, where after waiting until our appetites were sufficiently keen to appreciate it we were served with a good dinner. There were about 125 covers laid for the members and their guests.

BUCKS—AUGUST

The Bucks County Society held a splendid summer meeting August 8 at Grand View Hospital, Sellersville, the only hospital in Bucks County. Forty physicians proved their interest in the program by attending.

Dr. James W. Kennedy, Surgeon to the Joseph Price Hospital, delivered an address on "The Causes of Mortality in Urgent Work." The doctor's strong argument was that an early diagnosis be made; that mediocrity in the first day's study of the case frequently lessens the chances of recovery; that laxity of observation and decision greatly hinder the operator's ultimate results; that the watchful-waiting policy is a big factor in the high mortality rate. An interesting discussion ensued.

By order of Surgeon General Gorgas, Lieutenant John D. McLean attended this meeting and very explicitly presented the needs of the army for medical men. He earnestly pleaded for the younger physicians to enroll in the Medical Reserve Corps and take the special army training so that when needed they would be prepared for special service.

Dr. William D. Robinson described the purpose of the Senior Military Medical Association, which is composed of physicians past the age of 55. He explained how this organization can be able to serve part time and thus aid very materially in performing work, by the direction of the government, for which they are especially capable.

Dr. B. Franklin Royer of the Department of Health, Harrisburg, described our civic duty in this great conflict and impressed upon the minds of the younger physicians the imperative call for help in some particular way to safeguard the health of our army while in active service and the welfare of the nation in general.

Anthony F. Myers, Reporter.

PHILADELPHIA—APRIL

The Philadelphia County Society met April 11 at 8:30 p. m. with President Jump in the chair. Occupational Diseases was the subject for the evening.

"The Effects of Cigar Manufacturing upon the Workers" was presented by Dr. T. Grier Miller. About one year ago the Industrial Board of the Pennsylvania State Department of Labor and Industry asked the Industrial and Occupational Clinic of the University of Pennsylvania for information which might aid in deciding whether children under 16 should be allowed to work in the banding and packing rooms of cigar factories. After a review of the literature an investigation of the cigar industry in Philadelphia was carried out. The present paper offers a review of the literature, a brief description of the processes of cigar making and a study of the social and medical histories with the results of the physical examinations of 400 workers in the cigar industry. While this study brings to light a number of diseased conditions in 400 cigar workers, only the conjunctival and pharyngeal congestion, the dental wearing, and possibly the brachial neuritis and the eczema may be looked on as incident to the presence of tobacco and its products. We must consequently look to some other explanation for the unfavorable results presented in the literature.

"Occupational Diseases as a Modern Problem" was presented by Dr. J. W. Schereschewsky, U.S.P.H.S., Pittsburgh. The question of the prevalence of disease in our industries constitutes one of the great social problems of the day which will be solved in proportion to the interest taken by our profession. To initiate systematic efforts in the study of the relation of disease to occupation the following steps are necessary:

1. Greater accuracy in the recording on certificates of death the exact occupation of the individual. Not only should the industry be stated, but the exact process and technical name for the operation. Similar data on previous occupations should be given.

2. In all hospital histories, provision should be made for exact recording of the patient's occupation in similar fashion.

3. Greater provision should be made throughout the country for reporting to state and federal authorities the occurrence of occupational diseases.

4. Death certificates should contain the statement of the opinion of the physician whether the occupation of the person contributed to the cause of the illness.

5. The establishment of industrial clinics in medical and industrial centers would throw much light on the relation of occupation to disease.

6. Our educational centers should furnish the necessary teaching facilities for the supervision of the employed.

7. Further studies of the health of workers should be carried on by federal and state authorities, the need for which is especially indicated in the prospective mobilization of the industrial forces of the country. Great advance may thus be made in our knowledge of the relation of the occupation to disease and consequently in the matter of prevention.

The Philadelphia County Society met May 9, at 8:30 p. m., Dr. John D. McLean in the chair.

"The Treatment of the Ocular Disturbances of Pregnancy" was presented by Dr. Paul J. Pontius. Muscular asthenopia is not of rare occurrence in pregnancy and may be relieved by refraction. Simple lesions of blepharitis marginalis or slight catarrhal conditions due to eye strain may be noted in patients physically below par and these usually respond to an eye wash. Acute amaurosis may be produced by preeclamptic toxemia and renal disease. It is usually transitory and disappears more or less completely after the gestation is interrupted. Schute pleads for systematic and careful examination of the eyes of pregnant women with the view of safeguarding their vision and even their lives. Randolph suggests the advisability of terminating pregnancy should albuminuric retinitis occur in the first six months of gestation, especially if violent headache be an accompaniment of the retinitis. An occasional complication of retinitis is detachment of the retina which usually disappears as the other ocular conditions resume their normal state. Wilson and Hird report complete recovery of detachment in a severe eclamptic seizure in the eighth month of pregnancy.

While many cases of goiter have been reported I have found no mention of severe ocular complication except one case reported by Bonnaire in which the exophthalmos followed a chill and in which there was no relief of the exophthalmos after delivery. Speaking generally one may say that the treatment of the visual disturbances of pregnancy may be summed up as follows: If there is no evidence of destructive changes or lesions that will permanently affect vision, such cases should receive appropriate therapeutic treatment both local and constitutional; but, just so soon as there is evidence that destructive changes are occurring, the pregnancy should be terminated. As Randolph states, it must be borne in mind that ophthalmoscopic findings in women, such as edema of the retina and retinitis albuminurica, are rarely followed by permanently complete blindness, though there may be considerable impairment of sight. This favorable termination is largely due to the prompt induction of labor.

"Morning Sickness" was presented by Dr. Charles S. Barnes. Simple nausea and vomiting should be cured as soon as possible for the comfort of the patient but especially to forestall an aggravated serious condition. The ills of the patient should not be magnified but in no case should the physician carelessly allow such a condition to proceed unchecked. Drugs are little to be depended on, although sometimes nausea and vomiting cease on the administration of a certain drug, sometimes another, likely by suggestion or coincidence. Improvement of personal hygiene and diet are of prime consideration. Sedation and elimination are important watchwords. The cure or palliation of gross lesions of pelvic or other organs is imperative. Usually these practical moderate measures to most of which every pregnant patient is entitled as a routine will reward the physician in making his patient comfortable or in saving her from a possible grave disease or from the grave itself.

"Albuminuria in Pregnancy" was presented by Dr. William E. Parke. Albuminuria is the most common disorder of the urine in pregnancy and has for its cause errors of metabolism, inflammatory and degenerative conditions along the urinary tract. It is not always possible to differentiate between the albuminuria due to an inflammatory and that due to a toxic state. If the patient is known to have had a previous attack of nephritis or the albumin appears early in the pregnancy, it is probably nephritic in origin. If on the other hand it first appears as late as the sixth month of gestation it is more likely to be toxic in origin. A nephritic may pass safely through a pregnancy but it is more common to manifest an insufficiency. Nephritis is also a well-recognized cause of stillbirths and next to syphilis is the most frequent cause of this occurrence. It is perhaps a factor also in some cases of premature separation of the placenta. Some patients who pass through a severe eclampsia are left with a nephritis. Expert chemical examination of the excretory products in the urine to determine the nitrogen from different sources may aid in prognosis. Treatment is directed to the excretory organs, to stimulation of the bowels, the skin and the kidneys with attention to the diet.

Samuel McClary, III, Reporter.

THE TRUTH ABOUT MEDICINES

NEW AND NONOFFICIAL REMEDIES

Since publication of New and Nonofficial Remedies, 1917, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies":

Neodiarsenol.—Neodiarsenol has the composition, physical and chemical properties and action, uses and dosage as given for neosalvarsan in New and Nonofficial Remedies, 1917. Neodiarsenol is supplied in ampules containing, respectively, 0.15, 0.3, 0.45, 0.6, 0.75 and 0.9 Gm. neodiarsenol. Neodiarsenol is accepted for New and Nonofficial Remedies, as the available supply of neosalvarsan seems to be insufficient to meet the demand, and this preparation conforms to the rules of the Council. Neodiarsenol is made in Canada under a license issued by the Commissioner of Patents of Canada. The Farbwerke-Hoechst Company holds the sale of neodiarsenol in the United States an infringement of its rights, and has stated that all violations of its rights will be prosecuted. The Diarsenol Company, Limited, Toronto, Canada (*Jour. A. M. A.*, Aug. 4, 1917, p. 383).

Gastron.—A solution of the gastric tissue juice obtained by direct extraction from the mucosa of the fresh stomach of the pig. It contains 25 per cent. by weight of glycerin, 0.25 per cent. absolute hydrochloric acid, and 1 Cc. is capable of dissolving 200 Gm. of coagulated egg albumin. Gastron is designed for use in disorders of gastric function. Fairchild Bros. and Foster, New York (*Jour. A. M. A.*, Aug. 25, 1917, p. 645).

PROPAGANDA FOR REFORM

Standardization of Serums and Vaccines.—The misunderstandings and difficulties as regards the standardization of serums and vaccines are pointed out by G. W. McCoy, Director of the U. S. Hygienic Laboratory. So far legal standards have been formulated only for diphtheria and tetanus antitoxin. A tentative standard for anityphoid vaccine has been devised. This completes the list of standardized biologic products. Though not standardizable, vaccine virus and antirabic virus are tested for potency in the process of manufacture. McCoy reviews the work which has been done in the attempt to work out and standardize other biologic products, and brings out the many difficulties which are in the way (*Jour. A. M. A.*, Aug. 4, 1917, p. 378).

Administration of Agar.—O. H. Brown and W. O. Sweek favor the administration of agar in the form of a hot lemonade, chocolate or bouillon. For the preparation of a lemonade they direct to take 2 heaping tablespoonfuls of the agar powder, flakes or shreds; add to 1 quart of water, and boil till the agar is thoroughly liquified; sweeten and add juice of one lemon; then drink the entire quart while hot. They suggest that the quart of hot agar lemonade may be prepared in the morning, poured into a vacuum bottle, and taken leisurely during the day. They find that patients prefer to make use of orange, grapefruit, vanilla, maple or other flavoring in place of the lemon (*Jour. A. M. A.*, Aug. 11, 1917, p. 467).

Some Miscellaneous Nostrums.—Newspapers advertise Swift's Sure Specific for the treatment of "rheumatism" and "impure blood." The advertising matter sent out by its promoters recommends "S. S. S." for the self-treatment of syphilis. No information is offered in regard to the composition of "S. S. S." except that it contains 15 per cent. alcohol and the claim that it is "made from purely vegetable ingredients."——Kaufmann's Sulphur Bitters are claimed to contain sulphur, gentian, wild cherry, aloes, eupatorium, "Tanacetum," balmony, podophyllum, "Senna Indica," calamus. It was sold as a remedy for scrofula, catarrh, salt rheum, rheumatism, etc., but the government declared these curative claims false and fraudulent (*Jour. A. M. A.*, Aug. 25, 1917, p. 663).

Treatment with Vaccines.—The conditions—self-limited infections and chronic infectious processes—in which vaccine treatment has been employed make it exceedingly difficult to determine if vaccines are of value. As pointed out by J. P. Leake of the U. S. Public Health Service, whenever the use of vaccines in a certain disease has been carefully controlled, its use has been found of little value. This is true of whooping cough, typhoid fever and gonorrheal vulvovaginitis and probably in pyorrhea alveolaris. As for the strikingly favorable results in individual instances which are reported by vaccine enthusiasts and repeated in advertisements, these may all be matched by equally brilliant results in cases not treated with vaccines (*Jour. A. M. A.*, Aug. 25, 1917, p. 648).

OFFICIAL TRANSACTIONS

Report of the Secretary

To the President and House of Delegates:

Your Secretary has received since the date of the last report, Aug. 31, 1916, $11.00, being the *per capita* assessment on four members for the period Sept. 1, 1914, to Dec. 31, 1915; $297.00, being the *per capita* assessment on 108 members for the calendar year 1916, making a total number of 6,729 paying for the year 1916. The number of members paying the *per capita* assessment for the calendar year 1917, up to and including August 31, is 6,838, yielding $18,804.50. Your Secretary, therefore, has received during the twelve months ending with August, and turned over to Treasurer Wagoner, the sum of $19,112.50. A comparison of the number of members having paid to August 31 for the three years shows the following: 1915, 6,383 members; 1916, 6,621 members; 1917, 6,838 members.

Ninety-eight members have died during the year as compared with eighty-one for last year. Thirty-eight of these had paid their 1917 dues. One member has resigned since paying his 1917 dues, and three members have been dropped. This leaves the actual membership Sept. 1, 1917, 6,796, as compared with 6,587 a year ago, making a net gain of 209 for the year.

The following societies have increased the membership during the twelve months as follows: Philadelphia, 120; Allegheny, 21; Schuylkill, 17; York, 16; Dauphin and Luzerne, 15; Delaware, 9; Lehigh, 6; Chester, Cumberland, Lebanon, Montgomery and Northampton, 4; Bedford, Franklin, Somerset and Tioga, 3; Adams, Center, Columbia, Crawford, Greene, Washington and Westmoreland, 2; Clarion. Clearfield, Clinton, Fayette, Huntingdon, Indiana, Montour, Potter and Wyoming, 1. The following societies have lost in membership as compared with a year ago: Lackawanna, 17; Warren, 9; Mercer, 6; Butler, Lycoming and McKean, 4; Beaver, 3; Blair, Bradford, Cambria, Elk, Jefferson, Lancaster and Venango, 2; Armstrong, Berks, Northumberland, Susquehanna and Wayne, 1. The loss in membership in some of these cases is partly due to deaths and transfers.

The following societies have paid for the same number of members as last year: Bucks, Carbon, Erie, Juniata, Lawrence, Mifflin, Monroe, Perry, Snyder, Sullivan and Union.

Soon after the Scranton Session the American Medical Association requested the Trustees to join with the Association in placing an organizer in Pennsylvania. Mr. Fred N. Standbridge of Philadelphia, who had been working in Philadelphia County for the Association, independent of the state and county societies, called upon President Codman, Chairman Appel of the Board of Trustees, and Secretary Stevens to discuss the matter. These officers favored placing Mr. Standbridge in the field as organizer, representing the American Medical Association and the Medical Society of the State of Pennsylvania, and a vote of the Trustees by mail sanctioned such action. Mr. Standbridge has visited most of the counties in the First, Second, Third, Fourth and Sixth Councilor Districts, and has done good work for the organized profession. The work has necessitated an immense amount of correspondence on the part of this office, the larger part of it being necessary in order to convince the officers of component county societies that the work was both desirable and feasible. In most counties favorable results have been in proportion to the cooperation on the part of the officers of the local societies. A more hearty cooperation would have produced larger results.

The State Society has paid $100.00 towards the expense of the organizer, but has received from the cooperating county societies $24.00, making the actual expense $76.00 for the work thus far. This sum, however, will be still further reduced by later payments from cooperating county societies. It is recommended that the state and county societies continue to cooperate until Mr. Standbridge has visited all the counties in the state.

There have been thirteen applications for assistance from the Medical Defense Fund since the Scranton Session, as follows:

Case No. 94. Application dated Sept. 17, 1916. Piece of pin in index finger of servant girl two months before seen by defendant. Removed after location by Roentgen ray. Stiff finger. Later amputated by another physician. Trial not probable.

Case No. 95. Application dated Sept. 7, 1916. Colles' fracture. Suit threatened, summons not served. Now barred by statute of limitations.

Case No. 96. Application dated Oct. 19, 1916. Intracapsular fracture of hip.

Case No. 97. Application dated Dec. 3, 1916. Fracture of tibia and fibula.

Case No. 98. Application dated Dec. 23, 1916. Estate of deceased member sued. Fracture of both bones of leg 2 inches above ankle. Two members of local society reported to have testified in favor of plaintiff. Verdict for $200. Widow preferred to settle rather than have appeal taken. Application was not made within thirty days after summons, as the widow was not familiar with the rules governing the Defense Fund. The trustees thought proper, however, to defend the case.

Case No. 99. Application dated Jan. 29, 1917. Summons served Nov. 28, 1916. Trustees declined to defend the case because the application was not made within the thirty-day limit.

Case No. 100. Application dated March 27, 1917. Compound fracture of tibia and fibula.

Case No. 101. Application dated May 4, 1917. Foreign body in the eye. Enucleation at hospital.

Case No. 102. Application dated May 26, 1917. Compound comminuted fracture, third phalanx, ring finger. Amputation by another physician later.

Case No. 103. Application dated July 20, 1917. Abdominal operation.

Case No. 104. Application dated July 29, 1917. "Appendicitis, dying condition on entering hospital. Death two days after operation."

Case No. 105. Application dated July 23, 1917. Fracture of right femur, laceration of scalp and wrists.

Case No. 106. Application dated Aug. 31, 1917. Particulars not yet known.

The following cases have been disposed of or been up in court during the past year:

Case No. 5. Application November, 1906. Inversion of fibroid uterus after delivery. Removal of uterus, good recovery. Judgment of nonprosecution entered

Dec. 29, 1916, by direction of defendant's attorney for want of any statement or declaration filed.

Case No. 15. Application August, 1911. Two members sued for $26,000 for alleged improper treatment, fracture of forearm. This case dragged along in court until May, 1917, when a trial lasting two days resulted in a verdict in favor of the defendant physician.

Case No. 41. Application April, 1913. A drainage tube inserted in chest by defendant was allowed by some one following his service at the hospital to become lost within the chest. Trial February, 1914, resulted in nonsuit on account of statute of limitations. Appealed to supreme court, which, in July, 1915, reversed the lower court and ordered a new trial. Retried March, 1916, and court ordered verdict of acquittal. Appealed to supreme court, which, in May, 1917, ordered a judgment in favor of defendant physician. This case, before it was finally ended, cost the state society more than $1,000.

Case No. 65. Application August, 1914. Incision of finger from which another physician had previously tried to remove broken needle. Trial November, 1915, resulted in judgment against physician of $250. Information regarding this trial did not reach the officers of the society until after the secretary's report for 1916 was in print. The result was due to several unfortunate incidents, among which was the sickness and death of the councilor in charge, the sickness and absence of the county secretary and the failure of the defendant to appreciate conditions.

Case No. 68. Application October, 1914. Gave anesthetic for dentist to extract infected tooth and assisted in subsequent treatment. Case dismissed by plaintiff in January, 1917.

Case No. 69. Application October, 1914. Fracture of radius and ulna, lower third. Trial March, 1916, lasted four days. Jury out thirty-one hours. Verdict of $4,812 against the physician. New trial was asked for and granted. Trial has been postponed by plaintiff several times, the last time on April 23, 1917. It is not expected that the case will ever come to trial, as the plaintiff is alleged to have committed perjury at first trial.

Case No. 73. Application November, 1914. Impacted fracture, both bones forearm, lower third. Trial December, 1916, resulted in compulsory nonsuit.

Case No. 80. Application June, 1915. Lacerated index finger with existing infection when first seen. Trial in January, 1917, lasted three full days and resulted in verdict for defendant.

Case No. 81. Application June, 1915. Death following operation for suppurative appendicitis. Action discontinued by plaintiff Sept. 26, 1916.

Case No. 84. Same as No. 85. This member had failed to pay his dues in time to be entitled to assistance.

Case No. 85. Application June, 1914. Fracture of femur and at base of skull. Death in hospital. Two members sued. Case called Dec. 7, 1916, and nonsuited because plaintiff failed to appear.

Case No. 90. Application September, 1915. Commitment of an insane person. Trial April, 1917, resulted in "binding instructions in favor of defendants under the law after case had been fully tried."

Case No. 91. Application November, 1915. Dislocation and fracture of ankle and fibula. Trial October, 1916, resulted in compulsory nonsuit. Application to remove nonsuit denied July, 1917.

Case No. 93. Application January, 1916. Injury to leg above ankle. Trial December, 1916, resulted in compulsory nonsuit.

Respectfully submitted.

C. L. Stevens, Secretary.

Report of the Treasurer

Johnstown, Pa., Sept. 5, 1917.

To the President and the House of Delegates, Medical Society of the State of Pennsylvania.

Gentlemen: I have the honor to submit to you the following report of the receipts and expenditures for the fiscal year ending Aug. 31, 1917.

RECEIPTS

1916	
Sept. 1, to cash balance on hand	$10,999.91
Oct. 4, to cash, received from C. L. Stevens, Sec.	2.75
Oct. 4, to cash, received from C. L. Stevens, Sec.	112.75
Nov. 7, to cash, received from C. L. Stevens, Sec.	156.75
Nov. 7, to cash, received from C. L. Stevens, Sec.	27.50
Dec. 13, to cash, received from C. L. Stevens, Sec.	305.25
Dec. 13, to cash, received from C. L. Stevens, Sec.	13.75
Dec. 13, to cash, received from C. L. Stevens, Sec.	8.25
1917	
Jan. 2, to cash, received from C. L. Stevens, Sec.	379.50
Jan. 15, to cash, received from C. L. Stevens, Sec.	924.00
Jan. 29, to cash, received from C. L. Stevens, Sec.	1,100.00
Jan. 29, to cash, received from C. L. Stevens, Sec.	11.00
Feb. 13, to cash, received from C. L. Stevens, Sec.	2,356.75
Mar. 3, to cash, received from C. L. Stevens, Sec.	1,630.75
Mar. 28, to cash, received from C. L. Stevens, Sec.	5,247.00
Apr. 13, to cash, received from C. L. Stevens, Sec.	4,641.50
May 3, to cash, received from C. L. Stevens, Sec.	1,381.00
May 28, to cash, received from C. L. Stevens, Sec.	371.25
May 28, to cash, received from C. L. Stevens, Sec.	2.75
June 15, to cash, received from organization work	7.00
June 28, to cash, received from U. S. National Bank, interest	6.14
July 11, to cash, received from C. L. Stevens, Sec.	299.75
July 31, to cash, received from Dr. J. J. Coffman, organization work	5.00
July 31, to cash, received from Dr. C. R. Rickenbaugh, organization work	3.00
July 31, to cash, received from Dr. Jos. Scattergood, organization work	2.00
Aug. 2, to cash, received from Dr. William Miller, organization work	7.00
Aug. 22, to cash, received from C. L. Stevens, Sec.	96.25
Sept. 3, to cash, received from C. L. Stevens, Sec.	44.00
Sept. 4, to cash received from Benevolence Fund, in nayment of Orders Nos. 37 and 109, drawn from General Fund	602.36
Sept. 4, to cash, received from Medical Defense Fund, in payment of Orders Nos. 1, 17, 26, 33, 36, 38, 42, 43. 56, 60, 75, 81, 82, 90, 91, 92, 104, drawn from General Fund	3,209.58
Total	$33,954.49

EXPENDITURES

Order No.	1916	
1.	Sept. 6, by cash, Achison & Crumrine, Med. Defense Fund, No. 65	$ 100.00
2.	Sept. 27, by cash, Wm. G. Jordan, printing, programs, etc.	118.92
3.	Sept. 27, by cash, Jay B. F. Wyant, councilor expenses	12.82
4.	Sept. 27, by cash, F. H. Smith, P. M., stamped envelopes	21.68
5.	Sept. 27, by cash, The Evening News, linotype work, programs	46.26
6.	Sept. 27, by cash, John G. Sherwood, auditing books of Secretary and Treasurer	10.00
7.	Sept. 27, by cash, American Surety Co. of New York, bond of Secretary	2.50
8.	Sept. 27, by cash, Clarence P. Franklin, Scranton Session	40.30
9.	Sept. 27, by cash, John C. Ingham, retainer fee.	100.00
10.	Oct. 3, by cash, American Surety Co., bond of Treasurer	12.50
11.	Oct. 3, by cash, H. D. Jessop, Scranton Session.	12.20
12.	Oct. 3, by cash, C. L. Stevens, October Transactions	565.25
13.	Oct. 3, by cash, C. L. Stevens, Scranton Session	37.80
14.	Oct. 17, by cash, Hotel Jermyn, Secretaries' Conference	32.34
15.	Oct. 17, by cash, Louis K. Klein, Com. on Scientific Work	11.16
16.	Oct. 17, by cash, Evans Printing Co., Scranton Session	3.00
17.	Oct. 17, by cash, H. H. Waite, Med. Defense Fund, No. 81	50.00
18.	Oct. 21, by cash, Dr. W. H. Cameron, Scranton Session	31.75
19.	Oct. 27, by cash, Harvey G. Butcher, Com. on Scientific Work	9.50
20.	Oct. 27, by cash, George B. Jobson, Com. on Scientific Work	20.00
21.	Oct. 27, by cash, C. L. Stevens, November Transactions	566.58

22. Nov. 8, by cash, Warren Stirling, reporting House of Delegates	$75.00
23. Nov. 8, by cash, C. L. Stevens, salary as Secretary	375.00
24. Nov. 8, by cash, G. W. Wagoner, salary as Treasurer	50.00
25. Nov. 8, by cash, Wm. H. Cameron, salary as Manager Exhibits	62.50
26. Nov. 17, by cash, Wm. A. McConnell, Med. Defense Fund, No. 91	50.00
27. Nov. 17, by cash, C. L. Stevens, December Transactions	569.91
28. Nov. 28, by cash, W. G. Jordan, printing and stationery	64.88
29. Nov. 29, by cash, J. B. McAlister, Com. on Pub. Policy and Legislation	25.00
30. Nov. 29, by cash, Mrs. M. C. Repp, reporting Surgical Section, Scranton	100.00
31. Dec. 8, by cash, Lulu Gay, reporting at Scranton	100.00
32. Dec. 8, by cash, L. C. Alexander, reporting at Scranton	100.00
33. Dec. 11, by cash, Burleigh & Challener, Med. Defense Fund, No. 97	25.00
34. Dec. 23, by cash, Harrisburg Club, Com. on Pub. Policy and Legislation	35.25
35. Dec. 23, by cash, C. L. Stevens, January Transactions	572.00
36. Dec. 23, by cash, Burleigh & Challener, Med. Defense Fund, No. 85	50.00
37. Dec. 26, by cash, Edw. B. Heckel, Med. Benevolence Fund	376.55
38. Jan. 15, by cash, Burleigh & Challener, Med. Defense Fund, No. 73	350.00
39. Jan. 15, by cash, Wm. G. Jordan, printing	31.86
40. Jan. 25, by cash, C. L. Stevens, February Transactions	573.06
41. Jan. 25, by cash, Louis Weber & Son, gavel	25.00
42. Jan. 27, by cash, E. O. Kooser, Med. Denfense Fund, No. 93	200.00
43. Feb. 3, by cash, W. S. Kirkpatrick, Med. Defense Fund, No. 80	225.00
44. Feb. 3, by cash, G. W. Wagoner, salary as Treasurer	50.00
45. Feb. 3, by cash, W. H. Cameron, salary as Manager Exhibits	62.50
46. Feb. 3, by cash, C. L. Stevens, salary as Secretary	375.00
47. Feb. 16, by cash, G. W. Wagoner, Endowment Fund	300.00
48. Feb. 26, by cash, F. H. Smith, P. M., stamped envelopes	21.62
49. Mar. 3, by cash, Penna. Medical Journal, reprints	11.25
50. Mar. 3, by cash, C. L. Stevens, March Transactions	575.75
51. Mar. 3, by cash, J. E. Sweet, Com. on Cancer	23.00
52. Mar. 22, by cash, F. H. Gerlock & Co., Com. on Cancer	3.75
53. Mar. 22, by cash, Theodore B. Appel, Councilor expenses	6.99
54. Mar. 22, George B. Jobson, Com. on Scientific Work	28.00
55. Mar. 22, by cash, Legal Publishing Co., Com. on Pub. Policy and Legislation	4.50
56. Mar. 22, by cash, W. M. Henderson, Med. Defense Fund, No. 98	150.00
57. Feb. 22, by cash, H. W. Cass, Councilor expenses	9.23
58. Mar. 22, by cash, C. L. Stevens, April Transactions	579.92
59. Mar. 22, by cash, F. H. Smith, P. M., envelopes, Com. on Pub. Policy and Legislation	33.21
60. Apr. 17, by cash, Burleigh & Challener, Med. Defense Fund, No. 90	200.00
61. Apr. 17, by cash, George A. Knowles, Com. on Pub. Policy and Legislation	12.40
62. Apr. 13, by cash, G. W. Wagoner, Endowment Fund	300.00
63. May 4, by cash, F. N. Standbridge, organization work	50.00
64. May 4, by cash, C. L. Stevens, Com. on Pub. Policy and Legislation	17.40
65. May 4, by cash, C. L. Stevens, postage expressage, etc.	38.22
66. May 4, by cash, C. L. Stevens, Com. on Scientific Work	19.50
67. May 4, by cash, C. L. Stevens, May Transactions	579.92
68. May 22, by cash, Legal Publishing Co., Com. on Pub. Policy and Legislation	6.00
69. May 22, by cash, Walter F. Donaldson, Com. on Pub. Policy and Legislation	14.05
70. May 22, by cash, Henry D. Jump, Com. on Scientific Work	12.00
71. May 22, by cash, Wm. H. Cameron, salary as Manager Exhibits	62.50
72. May 22, by cash, G. W. Wagoner, salary as Treasurer	50.00
73. May 22, by cash, C. L. Stevens, salary as Secretary	375.00
74. May 22, by cash, C. L. Stevens, June Transactions	$579.92
75. May 24, by cash, Henry C. Niles, Med. Defense Fund, No. 41	110.00
76. July 16, by cash, C. L. Stevens, Com. on Scientific Work	25.25
77. July 16, by cash, Margaret H. Fager, Com. on Scientific Work	10.00
78. July 16, by cash, Henry D. Jump, Com. on Scientific Work	40.80
79. July 16, by cash, Wm. N. Bradley, Com. on Scientific Work	17.60
80. July 16, by cash, Legal Publishing Co., printing.	13.00
81. July 5, by cash, E. J. Donnelly, Med. Defense Fund, No. 73	33.00
82. July 5, by cash, Coyle & Keller, Med. Defense Fund, No. 69	687.83
83. July 5, by cash, Donald Guthrie, Com. on Scientific Work	37.35
84. July 5, by cash, C. L. Stevens, July Transactions	579.92
85. July 5, by cash, F. N. Standbridge, organization work	50.00
86. July 16, by cash, G. W. Wagoner, Endowment Fund	300.00
87. June 22, by cash, G. W. Wagoner, Liberty Bonds	5,000.00
88. July 16, by cash, A. R. Matheny, Com. on Scientific Work	19.75
89. July 16, by cash, W. G. Jordan, printing and stationery	45.06
90. July 24, by cash, Edw. A. Shumway, Med. Defense Fund	453.75
91. July 24, by cash, Wm. A. McConnell, Med. Defense Fund, No. 91	25.00
92. July 24, by cash, John McGahren, Med. Defense Fund, No. 15	250.00
93. Aug. 14, by cash, J. B. McAlister, Com. on Pub. Policy and Legislation	59.10
94. Aug. 14, by cash, Jos. E. Willetts, Com. on Public Policy and Legislation	3.00
95. Aug. 14, by cash, F. H. Smith, P. M., stamped envelopes	21.67
96. Aug. 14, by cash, I. J. Moyer, Councilor expenses	14.64
97. Aug. 14, by cash, F. L. VanSickles, Councilor expenses	23.00
98. Aug. 14, by cash, C. L. Stevens, August Transactions	579.92
99. Aug. 25, by cash, Wm. T. Sharpless, Councilor expenses	10.40
100. Aug. 25, by cash W. H. Cameron, salary as Manager Exhibits	62.50
101. Aug. 25, by cash, G. W. Wagoner, salary as Treasurer	50.00
102. Aug. 25, by cash, G. L. Stevens, salary as Secretary	375.00
103. Aug. 25, by cash, C. L. Stevens, September Transactions	579.92
104. Sept. 1, by cash, John McGahren, Med. Defense Fund, No. 15	250.00
105. Sept. 1, by cash, W. G. Jordan, printing and stationery	19.90
106. Sept. 1, by cash, C. L. Stevens, Secretary expenses	25.29
107. Sept. 1, by cash, G. W. Wagoner, Med. Defense Fund for investment	5,172.50
108. Sept. 1, by cash, G. W. Wagoner, Med. Benevolence Fund for investment	693.40
109. Sept. 1, by cash, Edward B. Heckel, interest on Med. Benevolence Fund	225.81
Total	$26,256.56

SUMMARY

RECEIPTS

Cash on hand at beginning of year	$10,999.91
Received from Dr. C. L. Stevens for membership 1915, 1916, 1917	18,804.50
	$19,112.50
Received from interest on Liberty Bonds	6.14
Received from organization work	24.00
Received from Medical Benevolence and Medical Defense Funds in payment of orders issued from General Fund*	3,811.94
Total receipts	$33,954.49

EXPENDITURES

Investment in Liberty Bonds for Endowment Fund	$ 5,000.00
Investment in building and loan for Endowment Fund (100 shares, 9 payments made)	900.00
Journal	6,902.07
Salaries	1,950.00
Per capital tax for Medical Benevolence and Defense Funds for investment	5,865.90

On account of special funds for investment*	$ 3,811.94
Expenses of Scranton Session	707.57
Expenses of Committees and Councilors	664.65
Printing and stationery	314.43
Bonds of Secretary and Treasurer	15.00
Retainer fee	100.00
Gavel	25.00
Total expenditures	$26,256.56
Balance on hand	$ 7,697.93

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* The Benevolence and Defense Fund taxes for the year are not distributed until the books close August 31, as required by By-Laws. During the year payments are made on account of these funds out of the General Maintenance Account, and the amounts are returned to Maintenance Account from the funds, as set forth above, at the close of business, August 31.

SPECIAL FUNDS

MEDICAL BENEVOLENCE FUND

Investment:	
P. R. R. General Freight Equipment Trust Certificates Nos. 531, 532, 533, 534, 535, Series 1, par value 1,000, 4½ per cent., interest payable first day of July, October, January and April	$ 5,000.00
Wilkes-Barre City Improvement Bond No. 94, Series 1, par value $1,000, 4½ per cent., interest payable April 1 and October 1	1,000.00
Total investment	$ 6,000.00
Current account:	
Cash in bank at beginning of fiscal year	$ 3,102.92
Received from interest on deposit	107.32
Received from interest on investment	292.50
Received from per capita tax on membership	693.40
Total	$ 4,196.14
Withdrawn to cover interest received from Jan. 1, 1916, to Sept. 5, 1917, as per Orders Nos. 37 and 109, drawn from General Fund	602.36
Balance in bank	$ 3,593.78

MEDICAL DEFENSE FUND

Investment:	
Wilkes-Barre City Improvement Bonds Nos. 96, 97 and 98, Series 1, par value $1,000, 4½ per cent., interest payable April 1 and October 1	$3,000.00
Current account:	
Cash in bank at beginning of fiscal year	$ 1,610.33
Received from interest on deposit	46.24
Received from interest on investment	112.50
Received from per capita tax on membership	5,172.50
Total	$ 6,941.57
Withdrawn to cover vouchers Nos. 1, 17, 26, 33, 36, 38, 42, 43, 56, 60, 75, 81, 82, 90, 91, 92 and 104, paid for Medical Defense cases and drawn from General Fund	3,209.58
Balance in bank	$ 3,731.99
Endowment Fund:	
100 shares People's Building and Loan Association, Johnstown, Pa., 9 monthly installments paid	$ 900.00
Investment:	
Liberty Loan Bond	$ 5,000.00

Respectfully submitted.

G. W. Wagoner, Treasurer.

Report of the Trustees

To the President and House of Delegates:

Your Board of Trustees begs to submit the following report:

1. The Board reorganized on Sept. 21, 1916, by the election of Theodore B. Appel of Lancaster as chairman and Frederick L. Van Sickle of Olyphant as clerk. At this meeting the Trustees, considering the propriety of establishing a Section on Pediatrics, which matter was referred to them by the House of Delegates, decided to provide for the same for the 1917 session. It was also decided to set aside $1,200 during the year for the purchase of approved building and loan shares, and Treasurer Wagoner has taken out one hundred shares of stock in the Peoples Building and Loan Association of Johnstown, Pa., in the name of the Medical Society of the State of Pennsylvania, Endowment Fund. Payments for the nine months of this calendar year have already been made.

2. No meetings of the Board have been held during the year since the Scranton Session.

3. In November, 1916, the secretary of the American Medical Association proposed that our society join with the Association in placing an organizer in the field, and the plan was adopted after personal interviews with the organizer and a vote taken by mail. (For further particulars see the Secretary's report.)

4. In May, 1917, at the suggestion of Treasurer Wagoner, Chairman Appel requested each Trustee to write to Dr. Wagoner, giving his vote for or against the proposition to invest $5,000 in the purchase of Liberty Bonds. The proposition was approved and the bonds were purchased on June 2, 1917.

5. On June 25, 1917, Chairman Appel, having been commissioned in the Medical Reserve Corps, presented to President Codman his resignation as a Trustee. The matter being laid before the individual Trustees by mail, it was thought best to give Chairman Appel a leave of absence, and the suggestion was made that Dr. F. L. Van Sickle act as temporary chairman of the Board.

6. The printed report of the Secretary shows a satisfactory condition of the society and a review of the work of the Medical Defense Fund during the year. The printed report of the Treasurer shows the financial condition of the society on Aug. 31, 1917. All bills excepting for the programs and reports for the Pittsburgh Session are paid to date.

7. The present contract for publishing the Pennsylvania Medical Journal closes with September, 1918. The Trustees may make a supplemental report on the Journal during the Pittsburgh Session. Some definite action should be taken regarding this matter during the Pittsburgh Session. It was decided at Scranton that steps be taken to prepare for the taking over of the publication by the society after September, 1918.

8. War conditions during the coming year will make changes in residence of some members of the Board of Trustees, as four have been commissioned in the Medical Reserve Corps and will be removed from their usual activities as relating to the state society. Some plan of procedure should be adopted by the House of Delegates whereby the position of Trustee for any given district, made vacant by war conditions, should be filled during the absence of the elected Trustee for that district.

It is gratifying to report for the fourth year that no business has required the attention of the Judicial Council.

Respectfully submitted for the Trustees,

Frederick L. Van Sickle,

Clerk, in absence of the Chairman, T. B. Appel.

Report of Individual Councilors

DR. WILLIAM T. SHARPLESS, WEST CHESTER, COUNCILOR FOR FIRST DISTRICT

To the President and House of Delegates:

The councilor for the First District reports that he visited three of the county medical societies and has arranged to visit the others before the meeting of the state society. Throughout the district the condition of the societies is very satisfactory and there has been an increase of membership in every county. During the year there has been but one case brought to the notice of the councilor in which application was made for defense against alleged malpractice. This case has been investigated and the defense approved. All the other cases in the district, outside of Philadelphia, we believe, have been dropped. The meetings throughout the district have been well attended, the discussions have shown interest, and good feeling among the members appears to be universal.

DR. THEODORE B. APPEL, LANCASTER, COUNCILOR FOR THE SECOND DISTRICT

To the President and House of Delegates:

The medical affairs in the Second Councilor District during the past year have been very tranquil. Your councilor has visited Dauphin, Lebanon, York, Cumberland and Lancaster Counties and found the society matters in good and healthy condition. At Harrisburg he had the pleasure of carrying out the orders of the last House of Delegates and presenting to Dr. McAlister, the retiring president, a commemorative gavel before his local society. The Lancaster County Society has made a decided advance by organizing a housing medical club and the establishment of a permanent room, open at all times, to the members of the society, where the library will be housed and where the meetings will be held.

There have been two suits for malpractice against members of our society in this district. The suit in York County was won for a second time in the lower court and the appeal triumphantly combated in the higher court, closing the suit permanently. Attention is called to the fact that, as the result of a vigorous prosecution of our defendants, two or possibly three threatened suits against other members of the society did not materialize. They were of the typical blackmail type and the lawyers felt that there was no chance of compromise and that it would be useless to bring them before the jury. The suit in Lancaster County in which the defendant lost in the original trial and in which the society secured a new trial is still hanging fire. The second trial has been postponed three times and our attorney assures us that there is very little likelihood of its ever being called. In this case there was a very definite evidence of conspiracy involving certain practicers of massage who were heavily scored by the judge on granting a new trial.

DR. FREDERICK L. VAN SICKLE, OLYPHANT, COUNCILOR FOR THIRD DISTRICT

To the President and House of Delegates:

The reports for the past fiscal year of the county societies comprising the Third Councilor District give an opportunity, in a report to the Medical Society of the State of Pennsylvania by the councilor of that district, to congratulate the societies on their growth, prosperity and medical interest shown in the work which has been accomplished by each society.

The councilor has had the pleasure of visiting four of the societies of his district, practically five, inasmuch as the Wayne County Society includes members from Pike County at its meetings.

On January 18, an official visit was made to the Monroe County Society, with the privilege of seeing that the society elect officers, which it had not done in nearly two years. We trust the interest manifested at that meeting on the part of the members will continue and that good and harmonious feeling will prevail in the society, and that it will accomplish the ideals which it has the opportunity to do for the medical profession of Monroe County.

On May 15, by invitation, visit was made to the Wayne County Society, which includes members from Pike County, the meeting being held in the Farview Hospital. There were thirty-three members present, and the Wayne County Society is in fairly prosperous condition. At that meeting a paper on "Acute Indigestion from a Surgical Standpoint" was read by Dr. S. D. Molyneux of the Robert Packer Hospital, Sayre. Those present had the privilege of observing several cases of criminal insanity, as presented by Dr. Krause of the Farview Insane Hospital. Wayne County Society includes in its membership all the medical men of good standing in the county, with the exception of two.

May 23, an official visit was made to the Luzerne County Society, which meets in its own building and has ideal quarters for library, committee meetings and general meetings of the society, a feature which should be possessed by all county societies where it is possible to reach this ideal condition. Luzerne County Society needs no particular commendation in this report, as it has always been a progressive, energetic, medical center. The evening was devoted to listening to papers on the subject of "Blood Letting," and a very animated discussion was entered into by a large number of the members present.

No particular official visit was made to Lackawanna County Society, the home society of the councilor, as every opportunity has been taken to inform the members of this society of any matters of interest, where the opportunity has been given. The Lackawanna County Society now ranks the fourth largest in the state, from the standpoint of numbers, and has been forging ahead with an active membership and its officers have endeavored to keep a lively interest in medical matters. It is regretted that Lackawanna County has not a medical building of its own, which would provide proper accommodations and stimulate interest in the meetings. We trust the day will come when this condition may be realized.

It is regretted on the part of the councilor that Northampton, Lehigh, Carbon and Bucks counties could not have been visited in person by him. However, communications were sent to these various county societies and responses were received from all of them.

Northampton County Society reports, through its secretary, that it had a fairly good average year, although the attendance was not so large as the previous year. The membership is 120. For the past three years it has been the rule to hold ten meetings a year, whereas formerly bimonthly meetings were held. Men prominent in medical matters have been requested to present papers from practical subjects, and this has been accomplished in most instances. The annual dues of $5 has made it possible to accumulate a certain fund which the society has had in view as a nucleus for a medical library. The average attendance at these meetings of the society has been about 10. The society has an active secretary and it is the earnest hope of the councilor that this county society shall indeed see a very prosperous year, even though the war may deplete its membership.

The secretary of Lehigh County reports that the society has a membership of 99; that 8 new members were admitted during the year 1916; that it held during the past fiscal year 16 meetings, with an average attendance of 25 members. Its financial condition is encouraging, having a good cash balance on hand, Jan. 1, 1917. This society has fallen in line by issuing "The Bulletin," commencing January, 1917, and it is to be commended upon its active work, its increase in membership and its endeavor to keep medical affairs in that county in good shape.

Carbon County has a membership of 30 and holds a meeting every two months with an average attendance of 10 members. Its financial condition is good and the interest manifested by the members is encouraging. The program for the year is furnished by the members, except one meeting in which the program is from outside. The dues of the society ($5.00 per year) pay its expenses. Carbon County is to be encouraged to increase its membership to every available member of the county.

Bucks County is also one of the counties of the district which needs but little encouragement, as it has always had live secretaries and active membership and the past year has been no exception to its good work. It held four regular meetings and three special meetings during the past year. The membership is 83 with an average attendance of 34. At meetings in which special interest in papers is manifested the attendance has reached 46. Bucks County Society is one in which medical legislation is properly considered and it has devoted special meetings to the purpose of considering medical legislative affairs. One of the features of this society is that at each meeting a dinner is given, which encourages a larger attendance and reaches the social side of the profession, giving an opportunity for the members to become acquainted. The secretary strikes the keynote in medical society affairs, which should be applied to every medical society in the state of Pennsylvania, when he says: "An atmosphere of optimism permeates every nook and corner of the Bucks County Medical Society and it very materially aids in making the organization useful, hopeful and meritorious." Long life and a prosperous future is wished upon the Bucks County Medical Society by the councilor of this district.

The medicolegal condition of affairs in the third district are probably as good as any in the state inasmuch as comparatively few men have been caused annoyance and trouble for alleged malpractice. Assistance from the Medical Defense Department of the state society has been asked for by several members in this district during the past year. It has had the opportunity to defend in court three cases of alleged malpractice and so far verdicts have been given in favor of the defendants. Three new applications have been made during the past month, but the cases will not come to trial until 1918.

Inasmuch as this report closes the sixth year of trustee and councilor services I wish to take the opportunity of thanking the members of the medical profession of the various county societies of the Sixth District which were under my administration for five years, and those of the Third District, over which I have had the pleasure of presiding during the past year, for their hearty cooperation in all matters pertaining to this office.

It has been my desire to render any assistance possible to the members of all the county societies wherever I have had the opportunity to be of such service, and I bespeak for my successor the same hearty cooperation shown me.

DR. HORATIO W. GASS, SUNBURY, COUNCILOR FOR FOURTH DISTRICT

To the President and House of Delegates:

We regret there is no lengthy report from our district. Mr. W. N. Standbridge was well received and did some excellent work in the district.

Regular meetings were held in each county. Montour County has increased its interest very materially. Northumberland has lost several members by transfer to other counties. The Sixth Censorial District, including Juniata, Perry, Huntingdon and Mifflin counties, held a large and profitable meeting. It was well attended and a splendid program was presented.

We have no new applications for aid from the Medical Defense Fund, which speaks well for us.

The Seventeenth Censorial District, including Northumberland, Montour, Snyder and Columbia counties, will hold its meeting in Sunbury, September 5, which promises to be of interest and profit.

Many physicians from our district have been commissioned lieutenants for the Medical Reserve Corps. Meetings for this purpose were held in nearly every county under the direction of Maj. C. A. E. Codman, Maj. Henry D. Jump, Capt. S. Leon Gans and Lieut. John D. McLean. This takes a number of men from active general practice, but the patriotic spirit of the men at home speaks well, for all of our societies have agreed to do the work of the practitioner absent on military duty and return to him 33⅓ per cent. of fees.

I consider the status of the Fourth Councilor District to be excellent.

DR. JOHN B. LOWMAN, JOHNSTOWN, COUNCILOR FOR THE FIFTH DISTRICT

To the President and House of Delegates:

Your Councilor for the Fifth District was unable to visit each county individually, but directly or indirectly has heard from them. All the societies have had a prosperous year, are in a very flourishing condition, with prospects for another good year. The war condition has naturally broken up some of the enthusiasm which we would expect to find were it not for this condition. The response from the Fifth District to the country's call has been most gratifying, and shows the patriotism of the physicians in their response to help mankind.

DR. WILLIAM W. LAZARUS, TUNKHANNOCK, COUNCILOR FOR THE SIXTH DISTRICT

To the President and House of Delegates:

Your Councilor for the Sixth District was in military service at El Paso, Texas, when elected last year, and is now at Camp Hancock, Augusta, Ga., trying to earn his salary by working overtime for the United States. During the summer it was my privilege to visit the societies of Bradford, Sullivan and Wyoming Counties, and also to communicate with the secretaries of the other societies in the district. None of the physicians here are likely to go to Pittsburgh unless the officers of the society shall have requested the War Department to make arrangements for such attendance.

While I am always ready to serve the society in any way that I can, under the circumstances you are at liberty to consider this my resignation as a Trustee and Councilor.

DR. IRWIN J. MOYER, PITTSBURGH, COUNCILOR FOR THE SEVENTH DISTRICT

To the President and House of Delegates:

The work of the societies in the Seventh District has been progressive during the past year. A steady and continuous effort has been made to advance the work of the profession, each county society diligently seeking to improve the usefulness of each of its members. Each society in the district has been visited during the year.

A keen interest in all matters relating to the profession is shown in every one of the societies. Good men and true, loyal to their profession, attend the meetings often when it is very inconvenient for them to take the time. Sometimes it is only the faithful few who attend, representing the backbone of the profession in their society, and forming the nucleus from which scientific and fraternal advancement becomes diffused throughout the entire membership.

The Washington County Medical Society has 110 enrolled. At the regular meeting, Dec. 12, 1916, there was a very good attendance; good papers were presented and a lively interest manifested. It is with much feeling that I note the loss of Dr. William R. Thompson, former district censor of the eighth district, whose death occurred April 17, 1917, after being struck by an automobile. Dr. Thompson was a useful man in whatever capacity he served and was much devoted to all that is good and true in the medical profession.

The Lawrence County Medical Society was visited April 5, 1917. The attendance was fair, but some of the members in New Castle were detained at that same hour because of a patriotic meeting. Good papers were read by members and nearly all took part in the discussion. Fifty-three members are enrolled. The presence of variola in Lawrence County recently brought home the fact to the "antis" that vaccination is essential.

The Greene County Medical Society was well attended June 12, 1917. This is the smallest society in the district, twenty members enrolled, yet those twenty members are awake to their duty and are enthused with the true professional spirit.

A very pleasant afternoon was spent with the Beaver County Medical Society, June 14, 1917. A very interesting talk was given by Dr. E. W. Willetts, of Pittsburgh, on "Laboratory Aids to Diagnosis," which was followed by good discussion by members of the society. The sixty-six members of the Beaver County Society are alert, studious, and well abreast in medical affairs.

On July 12, 1917, a very enjoyable day was spent at the Mercer Sanitarium, being the regular bimonthly meeting of the Mercer County Medical Society. The attendance was good. The same old faithful members come to all the meetings. One of the difficult problems in all the societies is how to induce the stay-at-home members to attend regular meetings.

The Seventh District represents a little more than one fifth of the entire enrollment in the state society.

The action of the recent legislature shows the uncertainty of securing a remodeling of the former legislative enactments. Much time and study has been given by the physicians of the state to the Workmen's Compensation Law. The trustees of the Medical Society of the State of Pennsylvania, pointed out some of the defects in the law, and drafted a plan whereby some of them might have been omitted. It has been repeatedly shown that the law does not sufficiently provide for the seriously injured for they are not properly compensated. In the hospital, after fourteen days, the hospital sustains a loss in maintenance and the surgeon receives nothing for his services. The excuse is sometimes made that the hospital receives aid from the state for some patients and should therefore maintain them as charity. But they are not charity cases. They are sent to the hospital as pay patients under the Compensation Law. For patients thus most needing compensation the term becomes a misnomer. Compensation then fails to be the term to apply and consequently should be modified or omitted.

Another subject demanding close attention from the medical profession is social insurance. That division of it called health insurance is the first important topic for consideration. Physicians all over the state should familiarize themselves with the fundamental economic principles involved in this subject. By so doing medical men may become informed and be in position to advise and direct the formation of public opinion in the real problems essentially concerned in health insurance.

DR. JAMES JOHNSTON, BRADFORD, COUNCILOR FOR THE EIGHTH DISTRICT

To the President and House of Delegates:

The report of the Councilor for the Eighth District this year is necessarily of a negative character. There have been no quarrels, no cases of malpractice, no claims on the benevolence fund.

Each county society maintains its organization and some are making improvements. Some are marking time, waiting for new births of activity and some have never yet found themselves. The fraternal spirit throughout the district is excellent. I have visited six of the seven countries during the year and, wherever it appeared that the management of the society was unacquainted with the methods of more successful organizations, have made suggestions that seemed to be well received.

This district, I believe, will furnish more than its pro rata share of surgeons to the new army. A number of men doing important work at home will choose, or have chosen, the service of the nation in preference to serving the needs of their localities. General practitioners in small communities appear to be more successful in passing examinations than their city brethren. There are practically no young men, who can easily be spared for the service, idly waiting in any of these counties, yet it appears that the service is not going to suffer. There will be more than seven surgeons per thousand soldiers from the northwestern part of Pennsylvania.

DR. JAY B. F. WYANT, KITTANNING, COUNCILOR FOR THE NINTH DISTRICT

To the President and House of Delegates:

The societies comprising the Ninth District have all been visited except Butler County. The societies are all doing good work and an effort is being made by all to have every eligible physician become a member of the county society. A goodly number of the physicians from the counties comprising this district have volunteered their services to the War Department. Some have already gone into the services of their country and others are awaiting their call. A resolution has been passed by most if not all the societies to take care of and keep intact the practice of the man who goes to serve his country and to turn over from one third to one half of the earnings of such practice to the family of the soldier doctor. Your councilor is happy to state that the societies are all in good working condition.

Report of the Committee on Public Policy and Legislation

To the President and House of Delegates:

The Committee on Public Policy and Legislation presents to you a discouraging report, because it has failed to accomplish the important subject referred to it by this body. The one hundred and twenty-second session of the General Assembly of Pennsylvania covered a period of six months, and probably no session has been so generally criticized for its waste of time and little real accomplishments. In this legislature, to keep track of bills of interest to our profession was the hardest task in our experience. More than 3,000 bills were introduced in the house and senate, and in this flood of proposed legislation it was most difficult to keep in touch with all bills which pertained to public health and medical practice.

Before the meeting of the legislature this committee invited a conference with the legislative committees of the Homeopathic State Society and the Eclectic State Association, which was well attended by representatives from all societies. As a result, the Legislative Medical Conference Committee of Pennsylvania was organized, and as such we represented 8,000 of the physicians of the state. This meeting endorsed the amendments to the Workmen's Compensation Act that were adopted by this body. This bringing together the three state societies to look after our mutual legislative and business interests is the one cheerful and encouraging feature of our report.

Among the very early bills introduced was the Optometry Bill. When the legislature convened we found the majority of members either pledged or decided to support optometry legislation, and its course was a foregone conclusion, whether the medical profession opposed it or not. It was passed and signed by the governor as early as March 30. The Commission on Conservation of Vision protested and secured a hearing before the governor. This committee used its influence against it, but realizing its helplessness, in order not to arouse unnecessary animosity to the profession, was not aggressive.

The Antinarcotic Law passed and has been signed by the governor. It had the unanimous favor of the legislature and the general support of the medical men.

The drugless healers, having built around them a clientele, had the usual strong backing of grateful patients and politicians to assist them in their plea for their board of licensure. They received less vote than two years ago.

Lobbyists representing the antivivisectionists worked incessantly and defeated valuable legislation in the interest of medical teaching and research. Senator Miller of Clearfield County fought zealously in behalf of the Commission on Medical Research and succeeded in having the Senate reverse its first vote and pass the "pound bill," but it was tricked to defeat in the House of Representatives.

A health insurance bill was introduced, against which we protested. It did not leave the committee to which it was referred. A bill was introduced to create a commission to study the subject of health insurance and report at the next session of the legislature. This did not leave committee.

The legislature created a committee of five to revise and codify the lunacy laws of the state, but the governor vetoed it because no money was appropriated for its purpose.

An appropriation of $200,000 was passed and granted for a hospital for inebriates for which this society has worked for several years.

Our greatest fight was for the amendments to the Workmen's Compensation Law, which this body instructed the committee to present to the legislature. Probably the greatest battle of the whole session was against any change to the present law. It was a fight between corporations and labor unions, and our interests were identical with those of labor. Corporations and employers opposed it. Mr. Joseph E. Grundy, president of the Pennsylvania Manufacturers' Association, fought it, and it is believed that his member of the legislature successfully manipulated the bill in committee for the purpose of keeping it off the calendar.

Mr. Mackey, chairman of the Compensation Board, who, so constantly since the passage of the act has been incorrectly telling the profession that it took no interest in the act in its drafting, and who promised his help to correct the injustice the law imposes on the profession, entirely repudiated his promise and agreement with this committee. He urged the legislators not to change the law. Members of the legislature were either openly opposed to our bill or afraid to go on record with their votes, and encouraged the manipulation to keep it off the calendar. No vote having been taken, we have no means of determining how effectively the doctors at home worked with their members.

From responses from various counties we know that much work was done by local legislative committees and individual physicians, but this committee had the usual experience of legislative committees. We several times addressed 100 or more letters to officers of county societies and received from fifteen to twenty replies; or out of 1,000 letters mailed to physicians throughout the state, from fifty to sixty replied to the committee giving us some desired information. The legislative committee would have had more influence, if throughout the session of the legislature there had been evidenced the general interest and cooperation of the members of the society. Many societies gave the committee splendid cooperation, but others unfortunately appeared indifferent, and there was real ground for the statement, made by Mr. Woodward and others, that "doctors could get anything they want if they only worked for it."

In Mr. Woodward, chairman of the Appropriation Committee of the House of Representatives, who introduced and championed our bill we had the strongest individual backing we could have secured in the legislature and for his earnest endeavors in our behalf he is deserving of the thanks of this body.

The medical profession must be better organized to cope with the manipulation and trickery of such legislative sessions. If we were thoroughly organized and properly led and were loyal to our leader the legislators would not dare ignore our just demands, and we could easily secure respectful attention.

We recommend that if the medical profession is to attain its proper position of influence and power it should employ a full-time, amply paid man who would efficiently represent the medical profession on all occasions. He would organize and unify the profession as it should be organized to make it a power with which politicians would reckon and whose opposition they would fear. He should represent the entire medical profession of the state.

We also recommend that the chairmen of the county legislative committees be associate members of the state committee so that there may be better cooperation between the latter and all parts of the state; that the appointment of these committees should be made with an appreciation of their importance and that men be selected who are in closest touch with their representative and senator, and can and will best serve our political aims. The value of home work is not appreciated.

We recommend that medical societies discuss legislative subjects and be agreed before the legislature convenes. When the state committee acts on the instruction of the state society all organizations should unanimously support it. This year, even after the legislature was in session, some societies took action contrary to that of the state committee, and so instructed their legislators, to our confusion and injury.

The subject of health insurance is becoming one of the most important questions of industrial legislation, and should have the thoughtful study of the members of this society.

Respectfully submitted.

J. B. McAlister, Chairman.
Frank G. Hartman.
C. A. E. Codman.
C. L. Stevens.

Report of the Committee on Defense of Medical Research

(Subsidiary to the Committee on Public Policy and Legislation.)

To the President and House of Delegates:

I herewith respectfully submit the report for the current year of the special Committee on Defense of Medical Research. Your committee has worked in conjunction with the executive and legislative committees of the Pennsylvania Society for the Protection of Scientific Research, in an attempt to secure the passage of the "dog-pound bill," the only important piece of protective legislation introduced at Harrisburg during the present year. The course and subsequent fate of the bill is worthy of detailed consideration since the weaknesses of our present system are thereby made evident and indications are given of the course which should be followed by the society in future attempts to influence legislation.

On Feb. 26, 1917, the "dog-pound bill" was introduced in the Senate by Senator S. J. Miller and sent to the Committee on Public Health and Sanitation on the same day. The measure was known as Bill 325, and provided that every duly incorporated medical, pharmacological, or veterinary school within the commonwealth should be permitted to purchase under proper restrictions and for the purpose of investigation and teaching, unclaimed animals from municipal pounds. This bill was finally passed by the Senate by vote of 30 to 14, this favorable action having been secured largely through the efforts of Senator Miller and of Dr. J. E. Sweet, the latter a member of both the Pennsylvania Society for the Protection of Scientific Research and of your Committee on Defense of Medical Research. Subsequent to this action of the Senate and previous to a public hearing on the bill before the House Committee on Health and Sanitation, a personal letter was written to each member of the House, asking him to await a statement of the bill before pledging himself against it. On May 12, a letter signed by five prominent Philadelphia physicians and outlining the merits of the bill, was sent to each member of the House. This work was carried on by the Pennsylvania Society for the protection of Scientific Research. In the meantime the Pittsburgh member of your committee was actively engaged in an attempt to secure the support of those members of the House who represented the western part of the state. In this work he was assisted by the Medical School of the University of Pittsburgh, by various hospital organizations, and by several influential physicians. On May 15, a public hearing was held before the House Committee on Health and Sanitation. On account of the absence from Philadelphia of Dr. Sweet, and of the fact that the chairman of your committee did not receive notice of this hearing until the late afternoon of the day before it, your committee was not represented at this hearing. However, Drs. William Pepper, Paul A. Lewis, and A. N. Richards attended the hearing and spoke in favor of the bill.

On May 22, a second public hearing was held before the House Committee on Health and Sanitation. This meeting was attended by a delegation representing the Women's Society for Prevention of Cruelty to Animals, and the Antivivisection Society. Two representatives of the University of Pennsylvania, three representatives of Jefferson Medical College, one representative of the Wistar Institute of Anatomy and Biology, one representative of the Henry Phipps Institute for Prevention and Treatment of Tuberculosis, and six representatives of the University of Pittsburgh, among whom was your chairman, were present in the interest of the bill. Seven addresses were made in opposition to the measure. The whole meeting was characterized by unfairness and disorder; gross misstatements were made by the opposition; the opponents of the bill frequently interrupted the proceedings without rebuke from the chairman; not one physician was permitted to speak. At the close of this hearing, the committee voted 17 to 5 to report the bill with unfavorable recommendation. A subsequent motion on the floor of the House was lost.

In closing this report, attention is called to the following facts: the "dog-pound bill' which was approved and supported by the medical profession as represented by the faculties of the various medical schools, by your Committee on Defense of Medical Research, and by representatives of various scientific organizations, was lost in Committee of House on Public Health and Sanitation. The successful opponents of the bill were persons without even a pretense of scientific training. No valid arguments were advanced against the passage of the bill. Instead of argument the opponents of the measure used invective only; instead of facts, they resorted to perversion of facts, and in one case at least to conscious and deliberate falsehood; instead of sentiment they paraded sentimentality. In these proceedings, they were supported by the manifest partisanship of the Chairman of the House Committee who was patient during the interruption of the proceedings by the lobbyists against the bill, yet who at the final hearing refused the privilege of the floor to the members of the profession who were present as the official representatives of the entire medical profession of the state.

In view of the failure to obtain the passage of this bill, it is obvious that the efforts of the profession to protect medical research should be increased. The state society should continue its special committee and this committee should work in support of other organizations having like aims and should receive support from them. This cooperation should begin with the inception of proposed legislation and should be applied to the framing of bills and to the subsequent carrying of such bills to successful passage by the legislative bodies of the state.

It is necessary that public opinion should be convinced of the need for the use of animals for the purposes of teaching and research. It is even more necessary that members of the medical profession should enter the field of practical politics to such an extent that it should become impossible to return to the legislature such of its members as are insensible to the fact that medical progress is essential to the continued welfare of the commonwealth, and that the way of such progress must not be blocked by the uninformed propagandist.

James D. Heard, Chairman.

Report of the Commission on Conservation of Vision

(Subsidiary to the Committee on Public Policy and Legislation.)

To the President and House of Delegates:

Owing to changes in the personnel of the commission, the present chairman was not appointed until January, so that a full year's work was not possible.

A meeting was called in February at the Bellevue-Stratford Hotel, and was attended by the entire membership with the exception of the chairman, who was unable to attend; present also at the meeting were Drs. Stevens and McAlister.

A program was discussed, dealing with various phases of the work; of prime importance was considered the advisability of continuing the fight our society has been waging against the proposed Optometry Bill, then pending before the state legislature. The commission was unanimous in the belief that the aforesaid bill was not in the interest of public health; that in its present form it was a menace to the public, rather than a safeguard. The bill in spite of high-sounding phrases was a measure dictated by commercial interests solely, and its operation would aggravate rather than ameliorate conditions already known to be bad throughout the state.

The Optometry Bill was rushed through both houses, backed by powerful commercial interests, so that your committee had no recourse but an appeal to the governor, our hope being based on the fact that he had previously placed his veto on a similar bill.

A hearing before his excellency was accordingly arranged; present at this hearing were several members of the commission as well as members of the state society, the opticians being represented by several who spoke for their side of the question. The impression gained by the medical men present was that our efforts had been successful; to our surprise, however, the bill was signed and became a law, Pennsylvania thus becoming the thirty-seventh state to legalize and recognize optometry as a profession.

Your committee feels that, with the establishment of optometry as above described, the domain of medicine has been invaded by a large group of men whose training has not been, even in part, along medical lines, and whose interest is wholly commercial.

The outcome furnishes a situation which is most regrettable yet one which it was impossible to avert; the commission, individually and collectively, strove to prevent the enactment of the above-named vicious legislation, but were forced to accept defeat.

Many lines of activity are projected by the commission but with the entrance of our country into war the attention of the medical profession has been diverted, temporarily let us hope, from sociologic questions to the many phases of military service. Meanwhile, it is recommended that the commission be continued.

No financial report is included for the reason that current expenses have been met with funds generously contributed by members of the commission to which was added a considerable sum contributed by individuals who have displayed an interest in the aims and objects of the commission.

WILLIAM W. BLAIR, Chairman.

REPORT OF THE COMMITTEE ON PROMOTION OF EFFICIENT LAWS ON INSANITY

(Subsidiary to the Committee on Public Policy and Legislation.)

To the President and House of Delegates:

From the opening of the session to the last day the *Legislative Journal* has been carefully studied and all bills relating to the subject in question have been secured from Harrisburg and carefully reviewed. Frequent discussion of these bills has been conducted with the Committee on Lunacy and others naturally interested in the proposed legislation.

The committee has kept in constant touch with various members of both houses of the legislature, who have frequently interrogated the committee on many of the bills under consideration. An effort has been made to frame such replies in keeping with the policy of the Committee on Lunacy and the Board of Public Charities. Certain measures which seemed inimical to the interests of the hospitals have been discussed and explained in detail and the attention of the men throughout the state engaged in the care of the insane has been drawn to these measures, and their advice and cooperation solicited. We feel that the committee in doing this has interfered in no way with the plans of the Committee on Lunacy and has perhaps been helpful in drawing attention to the unwise features of several bills which, if passed, would have inflicted unwarranted hardship on the insane and the various hospital managements.

In keeping with the original policy no effort has been made to introduce new legislation. The committee has preserved all its correspondence which makes an extensive folio which can be seen on request. The committee has borne its own expense, including a trip to Harrisburg and Philadelphia.

Respectfully submitted,
H. W. MITCHELL, Chairman.

REPORT OF THE COMMITTEE ON ARCHIVES

To the President and House of Delegates:

The Committee on Archives reports progress.

ALBERT M. EATON, Chairman.

REPORT OF THE COMMISSION ON MEDICAL EXPERT TESTIMONY

(Subsidiary to the Committee on Public Policy and Legislation.)

To the President and House of Delegates:

Your Commission on Medical Expert Testimony begs leave to make the following report:

Prior to and early in the session of the last legislature, a number of well-informed persons were asked as to the advisability of attempting to secure en enactment to govern the giving and taking of medical expert testimony at that session. In each instance it was declared that in their opinion it would be useless on account of the existing factional strife, and that to present a bill at this time might prevent favorable action at a future session, when conditions would be more harmonious. Your commission, deeming the subject to be of too much importance to be thus put into jeopardy, took no action toward having a bill presented at this session.

Respectfully submitted,
JOSEPH E. WILLETTS, Chairman,
HARVEY F. SMITH,
DAVID N. DENNIS,
FRANCIS P. BALL,
HENRY W. CATTELL,
AMERICUS R. ALLEN,
JOSEPH SCATTERGOOD.

MINORITY REPORT

Your Commission on Medical Expert Testimony begs leave to make the following report:

Prior to and early in the session of the last legislature, a number of well-informed persons were asked as to the advisability of attempting to secure an enactment to govern the giving and taking of medical expert testimony at that session. In each instance it was declared in their opinion it would be useless on account of the existing factional strife, and that to present a bill at this time might prevent favorable action at a future session, when conditions would be more harmonious.

Your commission, deeming the subject to be of too much importance to be thus put in jeopardy, took no action toward having a bill presented at this session of the legislature. But the inadvisability of introducing this salutary measure is another evidence of the necessity of a closer union and action of the medical profession, and it points conclusively to the need of a paid virile leader in our society to advance and protect the interests of the public and our profession, whenever and wherever it is necessary, and to educate our members to the necessity of supporting by voice, vote and action, before and at the polls, the men who will act for and with us in the legislature. A very small army of well-equipped and well-trained men can easily control a large mob; we are the mob, and the politicians of both parties and smaller and thoroughly organized societies are the armies we meet, consequently our good and salutary measures are defeated or ignored.

Respectfully submitted,
J. B. CARRELL.

REPORT OF THE COMMITTEE ON SOCIETY COMITY AND POLICY

To the President and House of Delegates:

Your Committee on Society Comity and Policy respectfully reports that since only one matter has been referred to us, it has not been necessary to hold any meetings of the committee during the year. To avoid unnecessary expense, the business of the committee has been attended to by correspondence. We respectfully recommend that the amendment offered by Dr. Heckel at the last meeting be adopted as follows:

Amend Section 2 of Article IX by substituting for the third sentence the following: Terms of the trustees shall be three years, three of whom shall be elected annually. No one, however, shall be eligible to succeed himself after he has served two full consecutive terms.

Respectfully submitted.

Lewis H. Taylor.
Alfred Stengel.
John Oenslager, Jr.
C. L. Stevens.

Report of Committee on Medical Benevolence

To the President and the House of Delegates:

Your Committee on Medical Benevolence begs leave to make the following report for the twelve months, Aug. 31, 1916, to Aug. 31, 1917:

The committee has expended $275 on account of benevolence, leaving a balance of $562.87 in the hands of the treasurer of the committee.

The report of the treasurer of the committee is herewith appended.

Respectfully submitted,
William S. Wray, Chairman.

RECEIPTS

Aug. 31, 1916. Balance on hand	$232.72	
Sept. 29, 1916. Interest on daily balance	2.79	
Dec. 29, 1916. Cash received from Treasurer Wagoner	376.55	
Aug. 27, 1917. Cash received from Treasurer Wagoner	225.81	
		$837.87

EXPENDITURES

Sept. 8, 1916	$ 25.00	
Sept. 16, 1916	25.00	
Sept. 22, 1916	25.00	
Dec. 7, 1916	25.00	
Dec. 22, 1916	25.00	
March 7, 1917	25.00	
March 19, 1917	50.00	
June 1, 1917	25.00	
June 23, 1917	25.00	
July 5, 1917	25.00	
		$275.00
Balance on hand Sept. 1, 1917		$562.87

Respectfully submitted,
Edward B. Heckel, Treasurer.

Report of the Commission on Cancer

(Subsidiary to the Committee on Health and Public Instruction.)

To the President and House of Delegates:

The Commission on Cancer met early in the year in Pittsburgh and planned an active campaign for the present year with the various women's clubs of this state. The onset of the war has made progress in this line impossible, first on account of the new responsibilities devolved on members of the medical profession, and second because nearly all the women's clubs are so taken up with war work of one kind or another that they could not well undertake anything new. For this reason the commission has considered it best to drop all active work until after the present war.

The expense incurred this year has been $26.75 to cover stationery and traveling expenses to Pittsburgh.

We hope that the Commission on Cancer will be continued during the coming year, but owing to the above mentioned conditions we do not consider it best to plan any active work and do not feel that it is necessary to ask for an appropriation.

J. M. Wainwright, Chairman,
E. A. Weiss,
J. I. Johnston,
Donald Guthrie,
J. E. Sweet.

Report of the Committee on Health and Public Instruction

To the President and House of Delegates:

The Committee on Health and Public Instruction has nothing to report except that it used every effort to help along in the movement to improve the milk supply in Pennsylvania, and supported the bill presented at the last meeting of the legislature for that purpose.

The report of the Commission on Cancer is presented herewith.

Charles H. Miner,
Chairman.

Report of Committee on Quarantine Service at the Port of Philadelphia

To the President and House of Delegates:

The committee appointed to consider the "Resolution urging the abandonment of State Quarantine at Port of Philadelphia and recommending that same be turned over to the Federal Government," begs to report that, in its judgment, it would be unwise at this time, for our society to recommend any change in our state quarantine system.

J. W. West, Chairman,
George H. Cross,
Henry Lovett.

Report as Delegate to the Medical Society of the State of New York

To the President and House of Delegates:

Acting under appointment as alternate delegate to the one hundred and eleventh annual meeting of the Medical Society of the State of New York, I wish to report that the visit was made and that the delegates, Dr. Samuel Calvin Smith and myself, were cordially received by the officers of that society.

We had the pleasure and privilege of listening to the work of the House of Delegates and the election of its officers, and of attending the annual meeting on Tuesday evening, April 24, at 8:15, when a very entertaining program was presented.

At the scientific sessions of the various sections of medicine, surgery, eye, ear, nose and throat, obstetrics and gynecology, pediatrics, public health, hygiene and sanitation, papers by eminent men of the state were presented, which reminded us very much of the meeting of the American Medical Association.

We met many prominent medical men of the State of New York, and found the work of the state society to be in a very active, flourishing and healthy condition.

As delegate, I wish to thank the Medical Society of the State of New York and the members of the House of Delegates for our courteous treatment and cordial welcome, and hope that the warm spirit of fraternal feeling may ever exist between the great states of New York and Pennsylvania.

Respectfully submitted.

Frederick L. Van Sickle.

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